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# DELAWARE STATE
# MEDICAL JOURNAL

VOLUME 29

1957

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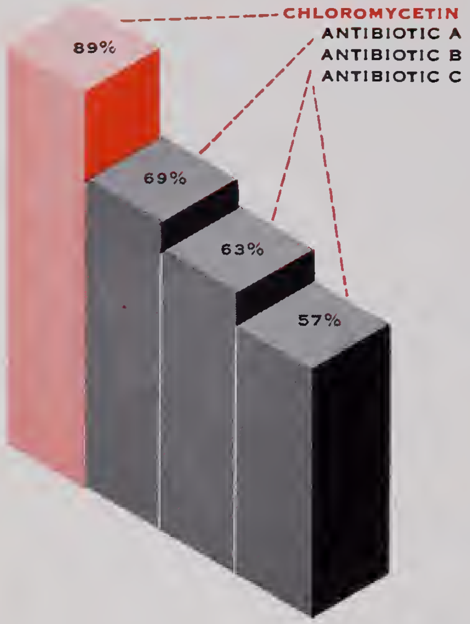

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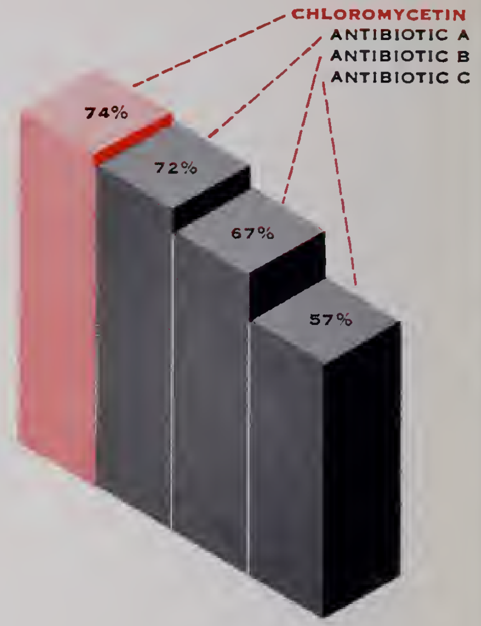

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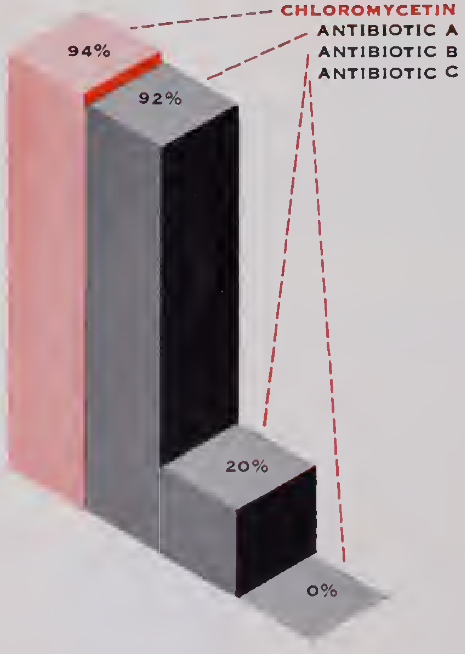

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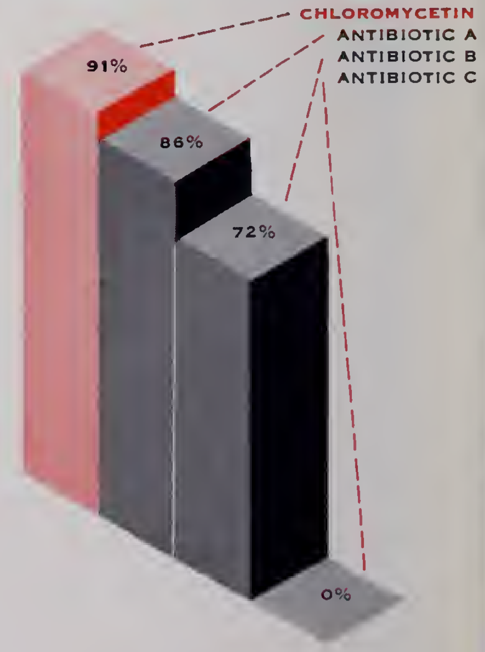

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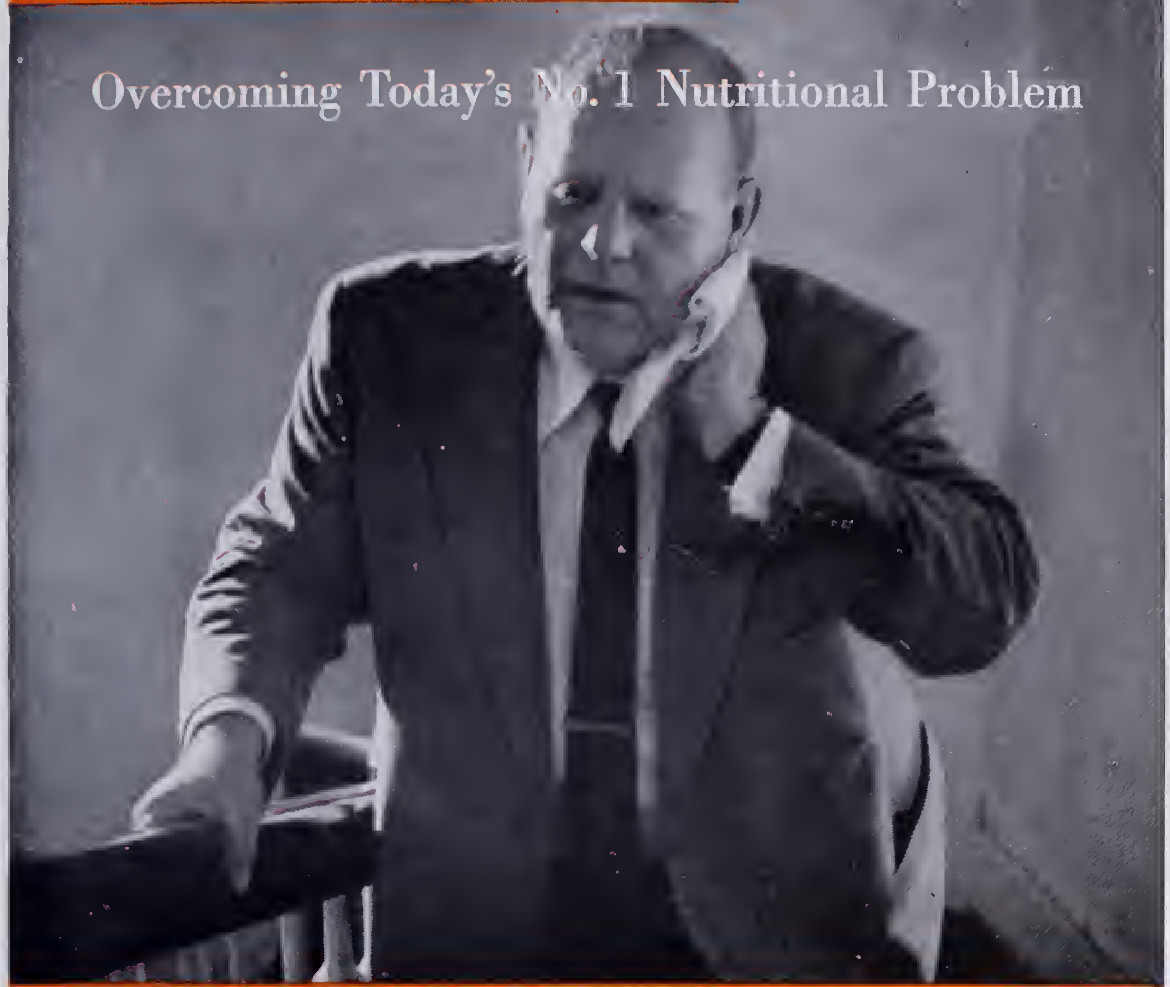
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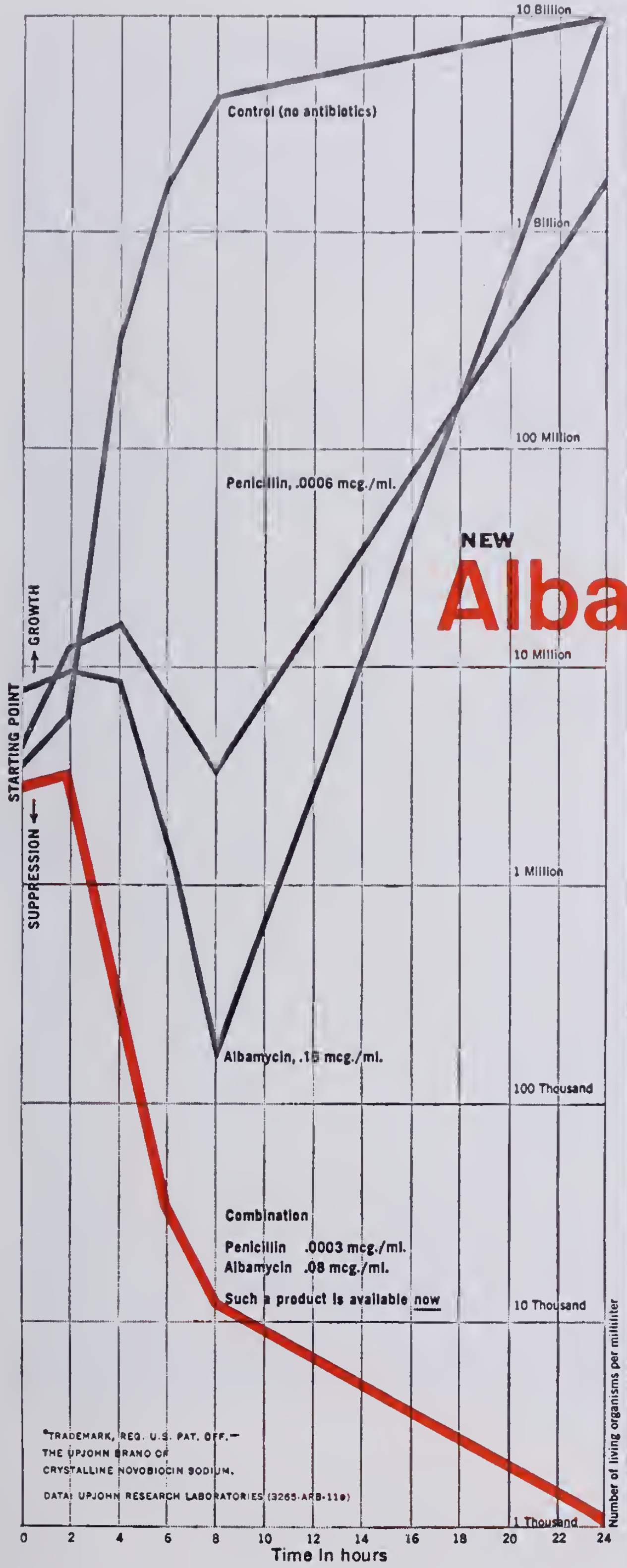

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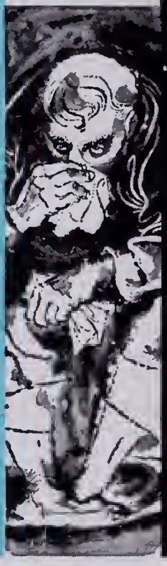

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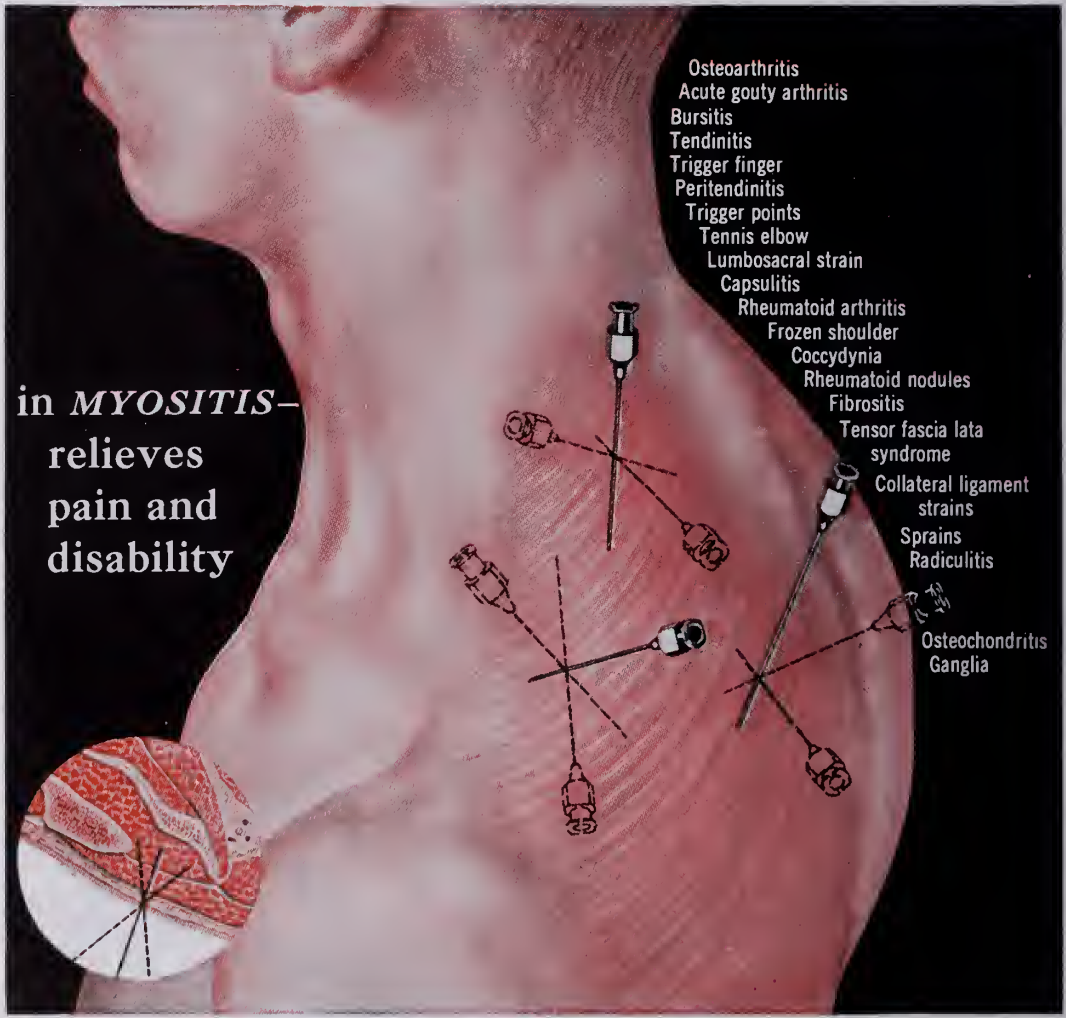

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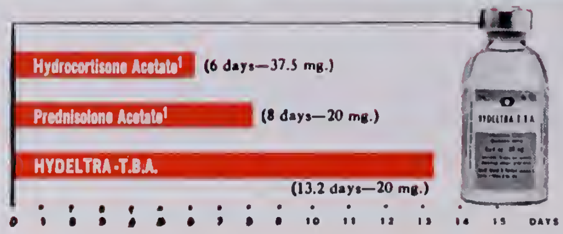

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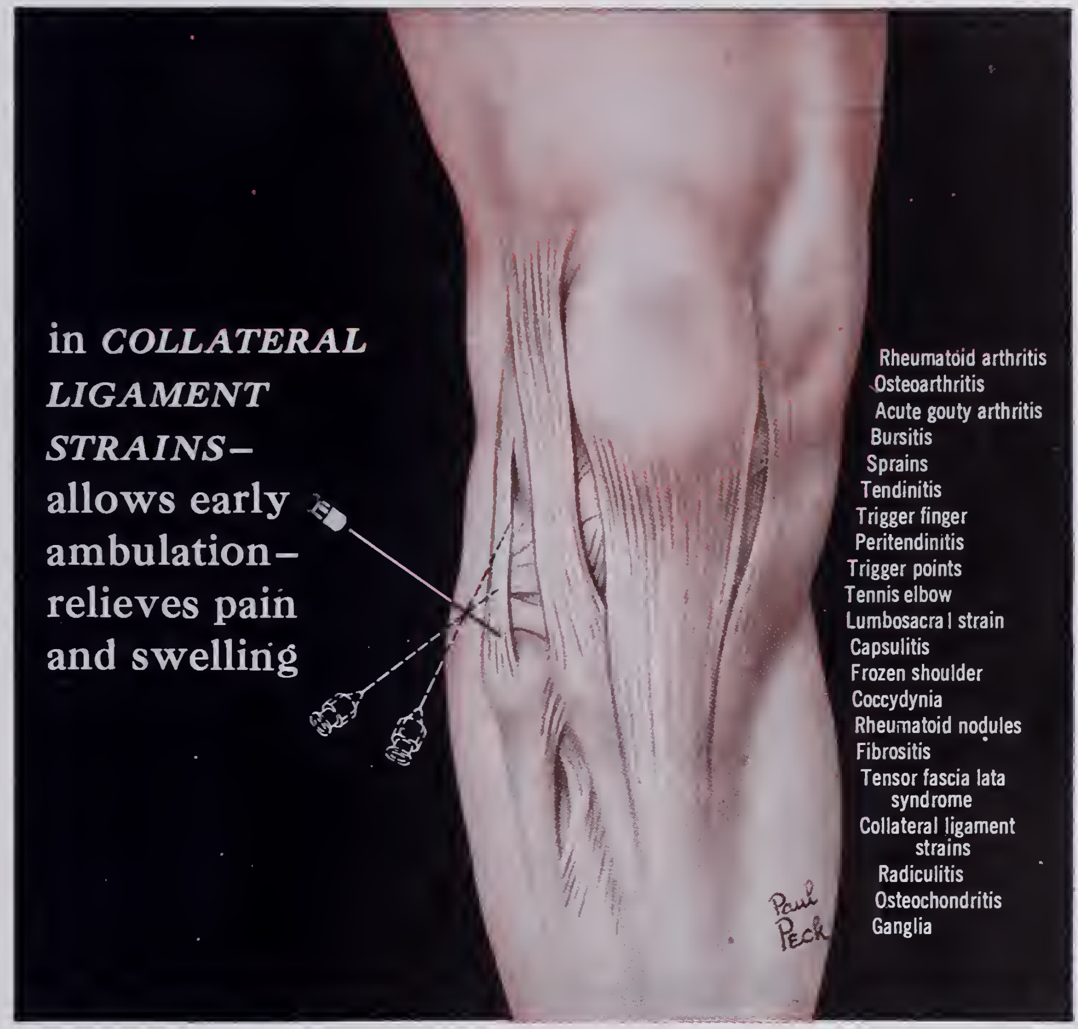

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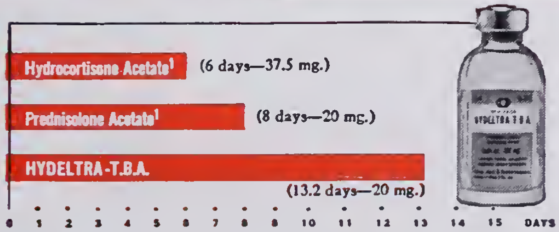

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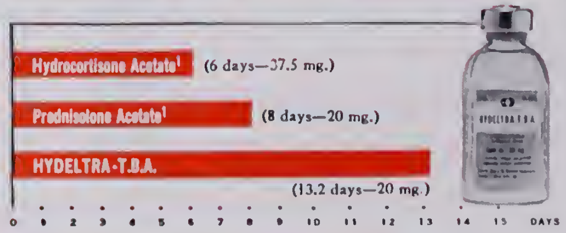

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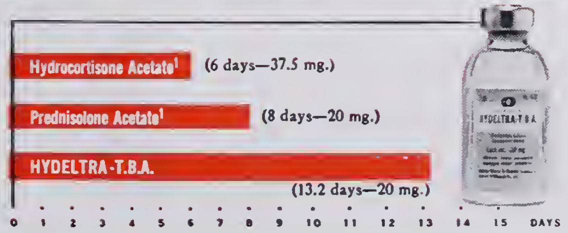

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reduces tenderness,
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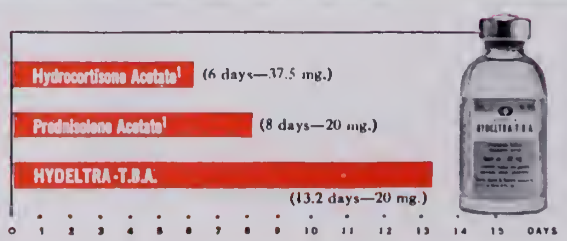

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The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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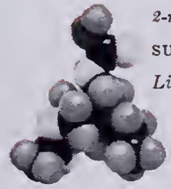

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†Abrahamson, I. A., Jr., and Abrahamson, I. A., Sr.: Am. J. Ophth. *42*:482, 1956.

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DELAWARE STATE MEDICAL JOURNAL

*Issued Monthly Under the Supervision of the Publication Committee*
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VOLUME 29 JANUARY, 1957 NUMBER 1

# THE FRAGILE CHILDREN OF DISCOVERY

## SOME REFLECTIONS UPON READING A NEW HISTORY OF MEDICINE*

PHILIP S. HENCH, M.D.

Former President Truman once wrote me: "The best education for a President of the United States comes from an intimate study of the lives, letters, and papers of his predecessors." The study of history can be of as great spiritual and practical value to a physician as to a president.

Dr. Otto Bettmann's *Pictorial History of Medicine* shows the whole extraordinary pageant of healing. If within it are vivid colorings reflecting the scarlet terror of epidemics, the white stillness of death, the gray fog of dark ages, there is also the golden brilliance of discovery. The emotional texture is dramatic, appealing, rich in contrasts: great earnestness and compassion, sometimes cold erudition, and much wishful thinking. If the chronicle of medicine reveals follies, frauds, and foofaraw, one also finds here unsurpassed dedication, integrity, effort incredibly sustained, often heroism and total sacrifice, and thousands of victories wherein no man was loser. In this book Dr. Bettmann has traced the art and science of healing — from the medicine man of ancient times up to the medical man of the twentieth century — in a manner that is both fascinating and scholarly. As a historian he can stand among the peers.

The young doctor of today never meets the greatest of his teachers in person. To be exposed to this incomparable faculty he must go to the pages of medical history: to Hippocrates, Paré, Pasteur, Lister and Osler. These great men are present in everything the doctor does — a fact illustrated by the story of the young physician faced with a difficult case. To bolster the confidence of a patient who was seriously ill, he said, "Why, Mrs. Jones, this morning Pasteur and Roentgen briefed me before I left home; Sydenham and Osler came here with me, and Domagk and Fleming are standing by." To which she replied, "Dear me, won't they cost a lot?"

They will cost nothing. The book of history is open — and free.

Our work rests — more, perhaps than that of any other profession — on the accomplishments of our predecessors. A knowledge of what they have given to medicine and to humanity should therefore be part of our background, and not for reasons of professional sentiment alone, but for reasons of good common sense.

Pursuing his career, the physician must of course strive to maintain a forward look: for it is ahead that both opportunity and difficulties lie. Yet despite modern complexities, most of our practical problems resemble those of our predecessors. The problems ahead are recurrences, variants of those in the past — the past of our elders if not our own. From our point of view they seem to come at us from in front, and to bear a fresh label. But beneath the wrappings there is usually an old problem, already examined and even, sometimes, disposed of. By borrowing experience and wisdom from predecessors we can view certain situations as if in retrospect, and view them with enormous profit.

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* The Delaware State Medical Journal is privileged to present in its entirety a manuscript from the pen of a Nobel Laureate from the Mayo Clinic. The first portion appeared as the Foreword to "A Pictorial History of Medicine" by Dr. Otto L. Bettmann (Charles C Thomas, Springfield). The second portion appeared as "The Fragile Children of Discovery" in Saturday Review, September 1, 1956. We are grateful to Dr. Otto L. Bettmann, Mr. Charles C Thomas and "Science and Humanity," the Research Section of Saturday Review for their permission to reprint this manuscript.

Physicians will do well, then, to look ahead for problems. Paradoxically, however, they should look "behind" for guidance, and a study of medical history provides an *excellent* rear-view mirror. Most physicians are unfortunately not conscious of their medical heritage, because few find time to study it. This may not be their fault alone. It must be admitted that many medical histories, however erudite, are not very readable. The author of this book, Dr. Otto Bettmann, has spent a lifetime to remedy this situation. In years of research in art centers all over Europe he has assembled a vast library of medical illustrations, studying, analyzing, and authenticating them so that they could become part of a new medical history: a history of medicine in pictures. This book was designed less for medical historians than for the practicing physician or layman who wishes to inform himself of the background of this profession at a glance.

What is the panorama that opens up before our eyes?

Dr. Bettmann's vista of 50 centuries clearly reveals that the course of medicine has not always been one of advance. If there are volumes of hard-won facts, lifesaving ingredients and conclusions, and galaxies of truths and half-truths, there are also despairs, supersititions, and sophistries. Although the over-all direction of medicine has been, at least since the Renaissance, one of improvement, its progress toward betterment has been on countless occasions retarded, or even reversed. Thus it is more accurate to speak of the "history" or the "development" of medicine, rather than of its "progress" or "advance." And for the reader, a chronicle which recounts the ebb as well as the flow of medical art and science is both more accurate and more entertaining than a mere description of clinical and technical advances.

To what extent have physicians, individually or collectively, been responsible for the course of medicine, for its forward spurts or its backward shifts? One view has it that medical progress depends chiefly on discoveries; hence the rate at which medicine advances is determined largely by the appearance of medical leaders and the results of their researches. Another view is that man is more servant of Fate than master, the product rather than the maker of environment. Thus great physicians are not "born medical leaders," but become leaders through the circumstances of their lives. Each period of travail generates its own saviors; each crisis produces discoveries.

Of these two views Dr. Bettmann supports neither extreme wholly. Because the physician is only one of many factors that have influenced the direction of medicine, the story cannot be told in terms of the medical man alone. Our medical benefactors must not be nameless, of course; but they must be seen in perspective, in the company of nonmedical contemporaries — friendly, indifferent, or hostile — whose ambitions and attitudes also require elaboration. Thus the author presents the course of medicine as part of general history. He views it not as a chronology of discoveries, but as only one of the great social forces — a continuing force, but one of fluctuating potency, now dominant, now recessive. Thus we see what impact the physician has had upon each of the great cultural and political areas, and vice versa.

Such is the story revealed in Dr. Bettmann's book. The product of the author's 30-year pictorial treasure hunt — plus his lifelong study of medical texts — the material displays a richness and variety which stamp it as part of a "collector's collection." Included are previously unpublished original photographs, and many ancient illustrations not heretofore published outside their land of origin.

In view of his vast array of graphic material, the author must have been sorely tempted to appeal chiefly to the eye; to construct his own medical art gallery within cardboards; to let most of the pictures speak for themselves, with mere captions and program-notes for the less articulate of his selections. But Bettmann the specialist in medical art is not subordinate to Bettmann the textual historian. The two combine harmoniously to create a superior form; and the lucid text is brightened by the instructive anecdote, the humorous twist.

Many readers will, I believe, be fascinated by this book without pausing to analyze its special appeal. But those who disregard the identity of that appeal are depriving themselves of what is, in my opinion, an important bonus. Almost daily the physician has to do some teaching of patients, medical school and hospital personnel, fellow-physicians, or public groups. The public's avid interest in health is greatly increasing the physician's responsibilities and opportunities as a teacher and lecturer. He is not often as effective as he could be because he seldom appreciates, or employs fully, the power of visual instruction. "A picture may instantly present what a book could set forth only on a hundred pages." Today's doctor will do well to heed this century-old dictum of Turgeniev — a dictum convincingly exemplified in Dr. Bettmann's *Pictorial History of Medicine.*

Its chapters are subdivided into compact thematic units of text and illustration. Each unit covers a particular subject — perhaps one great leader, an important controversy, or the development of some specialty. But the units keep their logical places in the general text, never losing their connection with related events. Thus there is no break in the continuity of interest and the sense of progression.

*A Pictorial History of Medicine*, then, is no "pictorial souvenir" for the physician to inspect casually and then consign to the patients' waiting room. Instead it should become a permanent member of his small, desk-side privy council: as dependable as the latest medical book or journal. In order to keep the size and cost of the book practicable, Dr. Bettmann concludes his chronicle as the twentieth century begins. Others will share my hope that this is not an end, but a pause, and that a companion volume will tell the fabulous story of medicine's last 50 years—years of unparalleled scientific discovery.

What are the qualifications for a discoverer? Important new medical truths have been discovered by physicians of almost every nation and race, of every social, economic, and professional level, at every academic or medico-military level. Not even a medical education is mandatory: many of the greatest advances useful in medicine were discovered outside the ranks of medicine. "Truth" is a capricious, fickle companion who hitch-hikes, momentarily at least, with the humble as well as with those of higher station. The prescription for success in discovery is commonly "non-refillable." No individual or nation can corner the market on Truth, patent the capacity to discover it, or obtain a long-time copyright thereon.

There seems to be no special "climate" for medical discovery. Great discoveries have been made almost anywhere or everywhere; no desolate military outpost is too small and disorganized, no research center too large and too organized to prevent them. And the physician's bed, sometimes the only place where he can really "think," has been the place of conception for many a great discovery. No place or circumstance is "off limits" for the germination or debut of a new truth. And so wherever there is a single physician there are the potentials for discovery.

No singular ability, no small constellation of human qualities, has been identified here or elsewhere as the insigne of the discoverer. He will be guided by reason's lenses, but will use logic as a "sometime thing," for "logical" plans have led to blind alleys and many medical truths are still quite "illogical."

The minimal price for success in research has usually been complete forgetfulness of clock or calendar, strong compulsions or dedications, unmeasured patience, effort sustained beyond hope; in short, the relentless pursuit of the fixed objective. But even this does not guarantee results, and it has been paid by countless "losers" as well as winners. And the labors and hopes of many a "prepared mind" have gone unrewarded.

To conceive and recognize a new scientific truth, whether by empiric observation, by inductive or deductive reasoning, or by experimentation, is one of the most difficult accomplishments of man. To sense the subtle authenticity of a fragment of un-discovered truth, a half-truth, to create therefrom, by skill and great patience, a new "whole-truth," and to launch it sturdy enough to survive the world's instinctive skepticism and hostility — all this must provide a unique satisfaction because it involves not only the discovery of a truth, but also the conversion of what is only a "personal truth" into an acceptable and generally accepted fact.

Why does it often take so long to utilize known truths and convert them into facts? As for the "power of truth," if medical truth is so invincible why is it so easily crushed, forgotten, lost? Why do so many truths, even important truths, have to be discovered over and over again before they can be accepted and put to work? These are the most discouraging aspects of medical history. The capacities and culture of the human race would be centuries ahead of their present status if man only had greater receptivity and sensitivity to truth, whether new or old. The generalization "Truth *does* something" is not correct. Truth *per se* is always passive; it is only a quality; it does nothing. But when truth is made to operate by nature or by man then it is a thing of power, active, quantitative. By contrast, there is nothing more fragile or delicate than that fragment of a new truth which forms in man's mind as an "original thought" and hovers there precariously on the borderline between his consciousness and subconsciousness. It has no weight, no substance; it is an embryonic "quality." Its mortality rate is terrific. Compared to it a human embryo is extremely hardy, its miraculous growth being almost automatic regardless of its host's wishes or actions.

It is not easy for an embryonic truth to live, much less to develop, in the mind of its host. Before wasting on it anything but the most casual thought the host will subconsciously try to stifle it with indifference, down-grading, excuses, etc. Even if he fertilizes it with some preliminary cogitation, orientation, and experimentation the "original thought" must overcome many dangers and enemies as it changes successively from a thought to a "notion," then "an idea," a side-tracked "conviction" or a growing "concept," and a prenatal "belief." At birth it becomes a valid belief, then after his own confirmation it is a personally known "fact."

Even at this point the new truth faces further difficulties and enemies. To the rest of the world it is not a new truth, not even a notion, for it isn't even known. As the first report of its existence is being prepared several fatal and near-fatal mistakes must be avoided, such as misjudging audience receptivity, etc. Next comes the first "trial by audience" which latter is a composite of the gullibles, the trusting, neutrals, doubters, and skeptics, not to mention the disinterested, and a heterogeneous collection of falsifiers. Thereafter it starts the grand tour to face, mostly without author-protection, a thousand audiences similarly composed and variably disposed. Some of the common enemies the new truth will encounter in each audience are preoccupation, ignorance (of the subject), premature criticism, ridicule, dogma, "natural doubt," inherent skepticism, misunderstanding, misinterpretation, misconception, misrepresentation, misquotation, distortion, belittling and down-grading, jealousy and (equally serious) exaggeration, up-grading and uncritical acceptance. Now, all these will be coming from physicians and scientists, *i.e.*, from persons presumably friendly to truth. And later from these same sources will come some full confirmations but more partial confirmations, rejections, and partial rejections.

If the new truth involves a remedy, in the testing of which the public will play a considerable role, further hues and shades of opinion will develop.

Considering all these difficulties, actual and potential, one wonders at the countless new medical truths which each year *do* gain general acceptance, surviving not only a prenatal maceration and digestion by the host but the natural inertia, skepticism, and reaction of the profession. Well and good; but Dr. Bettmann's account reveals an amount of "scientific spoilage" by way of rejected truths, forgotten discoveries, etc., that society simply cannot afford.

It would appear that an important percentage of discoverers and an even greater percentage of their critics do not understand or discharge fully their individual and mutual obligations. Clinical investigation is a moody business and the fluctuant moods can be stressful. The law of averages brings to an investigator the labors and fatigues of failure, of successful discovery, of work in progress, and of work on dead-center. It is not easy to keep a sense of balance and of objectivity even when only one project is being tended. Investigators and writers will note that the perverse instinct to kill off one's own litter is not confined to the animal kingdom. If the discoverer's sense of responsibility toward his creations were more even through the whole developmental cycle of each, and if he were determined to gain the favorable attention of more and more of the diversified elements of his audience, he would increase the output and durability of his discoveries.

Now what is the fundamental purpose of all such laboring, of all our planning and lecturing and writing and demonstrating and sharing and remembering? The heart of the matter is not just the stimulated mind (for this could produce mere self-satisfaction or academic snobbery). The end of it is not even the new and stimulating truth but the serviceable application of the truth. To be useful, medical truth must be put to work; it must serve. A scientific truth does not, by definition, become a fact (a noun derived from the verb *facere*—"to do") until it is made to operate.

In the last analysis that can happen only when and wherever the informed, dedicated physician and a single patient who needs him actually meet. It is in this place, a sickroom, of whatever kind it may be, where the truthful dreaming of the theorist, the demonstrations of the experimentalist, the magic of the chemist, the guidance of the laboratory, and the wisdom of the practitioner finally come together for their critical testing. Only in the sickroom can these separate forces demonstrate their basic truthfulness and ultimate usefulness; only here can they unite to fulfill their destiny of healing.

Alone here in such a room the physician must practice both his art and his science. And if his prescription is fashioned well by head and heart he will well and truly represent Medicine which, above all other arts and skills, seeks to preserve and restore the creative capacity of man.

# ARTERIAL HYPERTENSION
# A REVIEW OF THE RECENT ADVANCES IN EVALUATION

by
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The complications of arterial hypertension have been known for centuries, but the disease itself has been recognized as such only for the past half century.

### HISTORICAL BACKGROUND

Richard Bright[1] in 1836 gave the first lead toward the understanding of elevated arterial pressure in his paper summarizing the observations of 100 patients with albuminuria. In discussing the cardiac hypertrophy noted in 52 of these cases, he commented on the fact that 22 had no valvular or aortic disease to account for the hypertrophy affecting mainly the left ventricle. He hypothesized that either the "altered blood" had a direct toxic action on the heart, or the effect was on the arterioles necessitating "greater action" by the heart to force the blood through the vascular system.

In 1872 Gull and Sutton[2] studied Bright's disease and came to the conclusion that the primary focus of activity took place in the arterioles and capillaries and that the contracted kidney and hypertrophied heart were secondary changes. Mahomed[3] carried this view further by noting in 1879 that the blood pressure frequently was elevated prior to the development of cardiovascular or renal changes. He further noted that the demise occurred more often from cerebrovascular accident and cardiac decompensation than from renal failure.

Allbutt[4] in 1915 reaffirmed Mahomed's description of the disease and affixed the name "Hyperpiesis." This term was not widely used. Instead that used by Frank[5] in 1911, "Essentielle Hypertonie," was converted to English usage as "Essential Hypertension."

To this knowledge of the condition of essential hypertension little has been added over the past 41 years. The features mentioned by the early great thinkers of a positive family history, elevated blood pressure being present prior to the development of organic vascular and renal changes, and the major types of demise, are still much the same. The advances today are taking place primarily in palliative therapy by the use of drugs and surgery, with little of value being contributed concerning the etiology of the condition. More light is being shed on some of the diseases which mimic essential hypertension and these newer developments are better enabling us to classify and eradicate the etiologic focus of hypertension in these cases.

### PHEOCHROMOCYTOMA

The chromaffin tumor or pheochromocytoma has long been a fascinating disease. Fortunately or unfortunately, it is rare, being seen clinically with an instance varying in different studies from 1 in 200 to 1 in 3000 patients with arterial hypertension. The course and symptoms of the disease vary from a classical picture of paroxysmal attacks of apprehension, pallor, headache, chest or abdominal pain, palpitations, and a moderate to marked increase in blood pressure, to an asymptomatic picture of merely a sustained elevated blood pressure. This latter picture, which is said to occur in approximately 50% of the cases with pheochromocytoma, is responsible for much anxiety on the part of the physician. Adrenergic blocking agents have been widely used for diagnosis of this condition. Two drugs of this type are available. Benzodioxane was the first to appear and is still used. The drawbacks of this drug are many. Frequently a marked rise in pressure is noted in essential hypertension and occasionally this is associated with a sense of substernal oppression suggestive of coronary insufficiency. False negatives and false positives do occur. Regitine is now used

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more widely and seldom gives the rise in pressure as does Benzodioxane. Still, false positives occur as one might expect with a drug which is basically an adrenergic blocking agent and thus in its own right a hypotensive agent. Patients manifesting high blood pressure with a large neurogenic element almost invariably have a positive response after the first dose of 5 mgm. of Regitine. I have had the misfortune of seeing a patient die post-operatively who was being operated on with the preoperative diagnosis of pheochromocytoma based upon the positive Regitine test. Also on her chart was a marked response to 1 mgm. of hexamethonium, which of course, gave the diagnosis of hypertension with a major neurogenic element. She did not have a pheochromocytoma.

In 1954 the urine assay of catechol amines, breakdown products of epinephrine and non-epinephrine, was described in a form which was suitable for the average hospital laboratory. This was a major advance in detection of pheochromocytoma. It was advised by Goldenberg[6] following adequate preliminary evaluation of the two most suitable procedures, that all hypertensive patients have the rapid screening method originally described by Lund[7] in 1949. As occasionally there are false positives with essential hypertensive patients when using the rapid method, all positive results should have the longer photofluorometry method performed for confirmation. This latter test gave no false positives with a minimum reading for 16 pheochromocytoma patients of 138 units compared to a maximum level of 44 units for a large group of patients whose blood pressure was elevated from other causes. The wide use of these studies since 1954 has further substantiated these figures. The advantages of this diagnostic procedure are obvious and are as nearly specific as possible in the field of medicine.

As an added feature of interest in this condition, it is worth mentioning the work recently reported by Leiser and Corcoran.[8] They have described the changes which take place in the urine flow following the intravenous administration of Benzodioxane. A marked reduction of urine volume was noted to occur uniformly in seven patients with pheochromocytoma. Controls consisted of 32 essential hypertensive patients and 3 normotensive patients who showed no change in urine composition or volume following administration of the drug. It is proposed that this is an important confirmatory test prior to operation for pheochromocytoma. This preliminary report is convincing and certainly worthy of trial in a suspected case.

### Abnormal Renal Conditions

Another fertile field of hypertension has been in renal disease. No great strides have been revealed in the management or understanding of bilateral renal disease other than the recent work of Kark[9] in the field of renal biopsy. He has been, by his study and refinement of this procedure, uncommonly successful by obtaining kidney tissue in over 90% of his attempts. From the standpoint of hypertension, one practical aspect of his work has been the elucidation of the condition of bacterial interstitial nephritis which apparently occurs with negative urine cultures and the absence of white cells or albumin in the urine. Hypertension of this sort can be completely relieved by administration of antibiotics, providing of course that permanent structural damage has not occurred.

Renal biopsy is apparently a safe procedure, and well over 1000 biopsies have been done by the Kark method in the past three years without a fatality so far reported. In the near future it appears that it will be practicable to do renal biopsies on every case of severe progressive and malignant hypertension in a last effort to uncover a definite etiologic diagnosis. Renal biopsy, of course, should be undertaken only by one experienced in the procedure, and certainly every hospital should have this service available.

Unilateral renal disease goes through waves of popularity and disinterest as a hypertension topic. This is due to variable results following removal of diseased kidneys. Many investigators feel that a good response will occur only when the hypertension is of recent origin. It appears that development of hypertension secondary to unilateral kidney disease or damage is like pushing the starter of a gasoline motor. If one takes his foot off the starter early enough before the engine has caught, the motor will not continue to turn over. Early removal of the kidney following development of hypertension seems to be analogous. Poutosse[10] recently stated that for a successful operation one must have proven the pathology, have evidence of recent onset, and evidence of a rapid progression of the hypertension state. These are a reasonably well accepted criteria, and I believe sound. He presented a small series of cases of occlusion of the main renal artery, or a branch thereof, and emphasized the value of aortography. This procedure is now done at most hospitals. The two main methods used for injecting dye are the insertion of a catheter in the femoral artery or direct translumbar aortic puncture. The latter is simpler and is done more widely.

Howard[11] has described an interesting method of determining which kidney is involved in cases where unilateral disease is suspected but the location is unknown. He reported four patients with recent onset of severe progressive hypertension who had normal intravenous urograms and retrograde pyelograms. Two of them had had an attack of abdominal pain preceding the hypertension which was diagnosed as appendicitis. He found that the afflicted kidney, although having dye excretion equal to the normal side, had a reduction of water excretion by more than 50%; and that the sodium content of the urine excreted was 90% less than the concentration of the urine from the opposite normal kidney. These cases showed a uniform reduction of the blood pressure to normal following nephrectomy and filled the already mentioned criteria for a successful operation. This is a most interesting observation and should be of definite value, providing more confirmatory reports are published.

### TOXEMIA OF PREGNANCY

One field of hypertensive disease which has been long neglected is toxemia of pregnancy. Finnerty[12] has started and is producing a monumental study on this subject. Working in conjunction with the prenatal clinic his group has screened more than 1000 patients who were presented with the so-called "classic triad" of toxemia; namely, hypertension, albuminuria and edema. Many studies were done on this group but he found that by using the Funduscopic evaluation and urinalysis, this heterogolous group could be readily divided into specific diagnostic categories. The observation of a retinal sheen which is present in true toxemia and glomerular nephritis was the keystone of the work. This sheen is a wet glistening appearance present over the entire retina and is more marked than that usually noted in young adults and children.

In patients presenting this triad it was pointed out that retinal sheen coupled with normal arteries and only albuminuria was diagnostic of toxemia. If hematuria was present with the above, then the diagnosis was glomerular nephritis. If hypertensive vascular changes were present in the retina without the sheen, then the diagnosis was essential hypertension. If the sheen was added to this, the toxemia was superimposed upon chronic hypertension. If the fundi were normal and albuminuria was present, the diagnosis of pyelonephritis was made and confirmed by the finding of leukocytes or "glitter cells" in the urine. The "glitter cells" originally described by Sternheimer and Malbin[13] are leukocytes which actually seem to shine or glitter when stained with a supra-vital stain. These cells are only present in the urine when infection exists in the kidney parenchyma itself.

A breakdown by Finnerty of these patients tentatively classed as toxemia by the earlier mentioned method revealed the following:

| | |
|---|---|
| Hypertensive vascular disease | 666 |
| Hypertensive vascular disease plus toxemia | 90 |
| Postpartum hypertension | 72 |
| Pure toxemia | 154 |
| Pyelonephritis | 56 |
| Edema without disease | 8 |
| Unrelated cardiac or renal disease | 6 |

It is evident from the breakdown of diagnoses what a valuable contribution this is. Whereas 1081 patients were originally classified as having toxemia, only 15% of the group actually fell into this category. Differentiation of this group gave a better chance for active treatment where possible, as with pyelonephritis, and more sense of security for the later part of the pregnancy where the diagnosis was essential hypertension. Intensive close observation with the security of knowing more definitely which patients were liable to develop acute disease around the time of delivery is of great value to the obstetrician managing the case. Finnerty deserves much credit for a new and valuable contribution to the field of hypertension in pregnancy.

### ESSENTIAL HYPERTENSION

In evaluating the patient with essential hypertension, the major realm of contribution has been a more thorough comprehension of the natural course of the disease and a further understanding of the several tests which have been used for the past decade or so. When one attempts to evaluate a patient with an elevated blood pressure, he aims for two objectives. One is qualitative in which an effort is made to establish a definite diagnosis. The other objective is a quantitative one and in this instance an estimate and prognosis is the goal. It is imperative, of course, that these objectives be fully evaluated prior to advising a course of therapy. Only when dealing with a patient in the malignant phase or manifesting an acute encephalopathy is one warranted in treating first, then studying the patient. The new developments concerning the qualitative evaluation of the hypertensive patient have been discussed earlier in this paper.

If the patient is placed in that large category which we call "essential hypertension," it is of importance to determine the condition of the blood vessels, heart and kidneys. Keith, Wagener and Barker[14] in 1938 made the great step of correlating the changes in the retina with the stage and course of the disease. With the exception of Finnerty's contribution, nothing new has been added. It is still the single most useful procedure in the evaluation. In my estimation the funduscopic classification as it now stands could be improved only by a further breakdown of the grade II category. This is that stage in which the arterioles are narrowed, attenuated and show compression of the veins at the crossing points. In a series of 100 patients[15] with varying degrees of hypertensive disease, 54 were classed as grade II by this system. This suggests that this group is unfairly weighted and tends to give the assurance to the observer that a prolonged, relatively safe course lies ahead for the patient. There are many patients of this sort who actually lead a shorter course than the grade II classification would indicate. It has been my experience that two findings are important in this grade which tend to indicate a more severe progression of the disease. First, the degree of compression can be divided into three phases, which shall be called minimal, moderate and maximal. Minimal compression is evidenced by only a reduction of calibre of the vein as the artery crosses it. Moderate compression is present when the vein is actually obliterated for a short space on either side of the artery but the bed of the vein is not disturbed. Maximal compression shows a complete obliteration of the vein with a displacement of its course at the crossing point.

The second finding of importance is the presence of irregularities along the course of the arteriole. This was called "spasm" by Keith and Wagener but pathologically this change has been shown to be irregular areas of vessel wall hypertrophy. Spasm is seen with hypertension but usually only in pre-eclampsia and rarely in rapidly accelerated malignant hypertension. The patients with grade II retinopathy who have these irregularities usually are those showing more rapid progression of the disease. I do not have enough statistics available to propose a subclassification as yet but mention it as a strong clinical impression rather than an established fact.

To continue with our evaluation of the status of an essential hypertensive patient, it only need be mentioned that electrocardiograms and roentgen ray examinations for heart enlargement are mandatory in all cases. The status of the ballistocardiogram is still unclear in this condition so that little can be said concerning its use from the standpoint of severity or prognosis.

It is important to know the renal status as it is a major prognostic indicator. Albuminuria in the absence of congestive heart failure is an indication of undue stress probably at the glomerular level. It has been my feeling that albuminuria is like a cry for help. In most cases it disappears rapidly with reduction of the pressure. It is tempting to think of a test group of patients in which hypotensive therapy was aimed only at keeping the urine protein free without reference to the sphygmomanometer. It would indeed be an interesting series.

Further study of the kidney gives a better idea as to the competency of the various functional units of the nephron. The blood urea nitrogen level is a rough evaluation of glomerular function. A urea clearance test is more specific from the standpoint of added information and possible prognosis. Tubular function is easily evaluated by any of the standard concentration tests providing care from the standpoint of patient instruction is taken. A simple test where the patient need not be counted upon is the phenolsulphonphthalein excretion test but abnormal values must be confirmed by a second test to be valid.

One must realize that each of these tests supposedly measures only a part of the nephron and that tubular as well as glomerular function must be known. We are interested in total kidney function.

An observation of some interest[15] which was noted when reviewing a large number of charts of patients who had been followed for many years was that a rough relationship exists between tubular function and glomerular function in the course of essential hypertension. In these cases it was noted that the concentration power and phenolsulphonphthalein dye excretion began to fall long before the urea clearance was reduced or the blood urea nitrogen became elevated. The tubule is therefore apparently more sensitive to gradually increasing arterial pressure damage than the glomerulus with the exception of the previously mentioned seepage of albumin in the more acute elevations of pressure. These findings are not specific enough to use as a definite yardstick but are of some value when dealing with an individual patient.

Another field of testing in these patients is that of vascular reactivity. Two tests widely used are the cold pressor test and the sodium amytal test.

Hines and Brown[16] described the cold pressor test originally in 1933. The chief value of this test was in predicting with some accuracy which persons would be likely to develop hypertension at a later date. They performed this test on a series of 1015 patients who had normal blood pressure and of this group classified 156 as hyperreactors. Six years later the group was again examined[17] and 36% of the hyperreactors had developed hypertension as opposed to none in the group of normal reactors. They also correlated the response of the patient with the funduscopic changes (Keith, Barker and Wagener classification) and found that those in grade II gave the greatest response. This they felt indicated that grades III and IV probably had maximal vasoconstriction already so that the added neurogenic stimulus could not be manifested.

The sodium amytal test is about as nonspecific a test as can be imagined. The amytal acts on the cerebral cortex, the hypothalamus, and directly on the vessel wall itself. The results tell only one thing and that is how low the blood pressure will fall with intoxicating doses of amytal. There is no correlation of how that same patient will react to the various types of hypotensive medications. This test has been used in the past to indicate the degree of lability of the blood pressure with the false supposition that marked lability means the blood pressure elevation is less serious and will respond to (a) diet, (b) sympathectomy or (c) bed rest. The majority of the patients that give evidence of lability are found to disappoint the practitioner when he expects a good result with any of the above. The most specific thing which this test shows is, I repeat myself, what the blood pressure will do when the patient is intoxicated with amytal. Since very potent anti-hypertensive agents are available and give moderately safe, effective control in a large percentage of hypertensive patients, I believe there is little to gain from this test.

The course of essential hypertension is becoming more thoroughly understood as time passes and one of the most valuable contributions has been the work of Bechgaard[15] from Denmark. He has followed a group of 1000 patients with a minimum blood pressure of 160/100 mm for 16 to 22 years. 81% were 40 to 69 years of age at the onset of the study. 357 patients were still alive at the end of the period averaging 19 years. The original group was composed of 30% men and 70% women. 18% of the males and 45% of the females remained alive at the end of the study with one-third of the females being past 70 years of age.

A group of 63 patients who are over 76 years of age were broken down as to their initial blood pressure readings. Of the 12 males all had systolic pressures under 200 mm and 10 of the 12 had diastolic pressures below 110 mm. In the female group of 51 patients, 33 were under 200 mm and 18 were above. The female diastolic distribution showed 20 below 110 mm and 31 had initial diastolic pressures higher than 110 mm, an average of 19 years earlier. Only four patients in the group of 1000 received any specific therapy so that this can be considered as an untreated control study. Of this whole group, only 13 changed into the malignant phase during the first 10 years and none during the latter half of the study.

This collection of random cases and intensive follow-up over a 22 year period is one of the most valuable pieces of work shedding knowledge on the natural course of essential hypertension. Among the many lessons suggested by this study are the following: (1) the incidence of change to the malignant phase is so low that when confronted with this condition, it is more likely to be of a different etiology than essential hypertension. Therefore, intensive qualitative study is imperative. (2) Mild to moderate essential hypertension is probably better not actively treated but should be observed only. Treatment should be reserved for those patients showing a tendency toward progression or with a high diastolic pressure coupled with signs of deterioration of the cardiovascular system. (3) Males seem to tolerate the disease poorly and probably should have more active treatment.

There are several other points worthy of mention in discussing the course of essential hypertension. The level of the blood pressure in any particular patient is not particularly important. The factor which is important is the ability of the individual cardiovascular system to carry the load. This varies from person to person just as do other physical and mental characteristics. Because of this, one may see a malignant hypertensive patient with a diastolic pressure of 100 to 110. At the other extreme, one may see a diastolic reading of 140 to 150 being carried for years without retinopathy or cardio renal deterioration. Another factor of equal importance is the rate of change of the pressure. This is seen occasionally when a chronic hypertensive patient of mild severity comes under stress which causes an elevation of pressure. This is followed by a more reactive vascular system with a higher continued pressure until the patient develops the picture of encephalopathy with or without a continuing malignant phase. If the cycle is broken and the stimuli are decreased, the patient may live a normal life until such external stimuli again begin. It is felt that this is comparable to the situation already discussed concerning the success of nephrectomy with a diseased kidney. The longer the sudden elevation of pressure remains the poorer are the chances of returning it to its previous state.

## Conclusion

The evaluation of arterial hypertension has been discussed from its early descriptions in the 19th century to some of the more recent notes by our present day workers. Worthwhile advances of a minor nature have been made in differentiating a few specific and curable causes. However the great mass of essential hypertensive patients can be evaluated only from the standpoint of progression of disease and from this evaluation the decision to use energetic therapy must be made.

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# MANAGEMENT OF THE PATIENT WITH ESSENTIAL HYPERTENSION

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During the past five years there have been important changes in the management of arterial hypertension. Whereas previously there were no effective agents for dealing with severe elevations of pressure, it is now possible to select from a number of anti-hypertensive agents of varying potencies. The effectiveness of any anti-hypertensive regimen is evidenced not only by the achievement of a sustained lowering of the blood pressure, but also by its ability to prevent the serious and fatal complications of hypertensive cardiovascular disease.

## Evaluation of the Patient

### Etiologic Features:

In the process of planning an anti-hypertensive regimen for a patient, certain questions must be answered concerning the patient and his disease. Although the majority of patients may fit into the category of "essential" hypertension, the physician must search for specific etiologic factors. Certainly no patient should be treated empirically without first taking steps to rule out the presence of coarctation of the aorta, Cushing's disease, pheochromocytoma, or unilateral renal disease which might be corrected surgically with cure of the hypertension. Polycystic renal disease and glomerulonephritis occasionally may be found in association with hypertension, but unfortunately their treatment does not often result in relief of hypertension.[1]

### Clinical Approach:

One cannot overemphasize the importance of the initial interview and examination in establishing rapport with the patient. At this time the examiner can make a tentative evaluation of the patient's intelligence and emotional maturity, factors which should be weighed before embarking on a therapeutic program.

In addition to the history and physical examination, a few laboratory studies may be helpful in evaluating the severity of the hypertensive disease and the extent of vascular damage. We routinely perform electrocardiography, orthodiagraphy, funduscopy, urinalyses, intravenous phenosulfonphthalein excretion tests, blood urea nitrogen and urography. It is emphasized that all of the above except intravenous urography can be performed as office procedures. In addition, we have found it helpful to do a simple postural test.

### Technique of postural test:

1. Have patient lie flat with one small pillow for 10 minutes in a comfortably warm, quiet room.
2. At the end of this period take blood pressure and pulse rate at intervals of 1 minute for 2 readings. Count pulse for 10 seconds x 6. Measure blood pressure to the nearest multiple of 5.
3. Have patient rise quietly and stand relaxed at the side of his bed.
4. Record blood pressure and pulse rate.
   (a) Immediately after standing.
   (b) After 1, 2 and 3 minutes of quiet standing.

This not only will indicate the severity of the hypertension and detect the occasional patient with spontaneous postural hypotension, but also will aid in evaluating the effectiveness of anti-hypertensive drugs, particularly ganglionic blocking agents, or the result of operations for hypertension.

## Spectrum of Treatment

### Mild and Moderate Hypertension:

In the management of the patient with mild, labile hypertension, certain basic measures such as sedation (including reserpine), rest, improved work habits, and weight reduction in the obese still have basic value. Foods high in salt content should be avoided, and salt should not be added at the table. In the presence of fluid retention more dramatic restriction of salt is advised. This may be achieved by a 500 mgm. sodium diet or by the rice diet.

**Severe Hypertension:**

For the patient with severe hypertension, particularly if there is evidence of progressive vascular damage, one is obliged to add to the regimen above the use of depressor drugs which have the specific effect of lowering the blood pressure. Here a knowledge of drug action, side effects, toxicity, comparative potency and contraindications is not only helpful, but is obligatory. It is our impression that, although these drugs are useful in expert hands, they are currently being used to excess and sometimes unnecessarily.

The patient with only moderate hypertension can often be managed adequately with less potent agents such as rauwolfia or veratrum. For the severely hypertensive patient Apresoline and the ganglionic blocking agents stand out as the "big guns" of the therapeutic armamentarium.

It becomes helpful to classify these agents into three groups according to their site of action.

| Adrenergic Blocking | Centrally Blocking | Ganglionic Blocking |
|---|---|---|
| Regitine | Veratrum | Hexamethonium |
| Benzodioxane | Protoveratrine | Ansolysen |
| Dibenzyline | Apresoline | Ecolid |
| | Reserpine | Inversine |

### Adrenergic Blocking Drugs

**Regitine:**

Among the adrenergic blocking drugs, Regitine is used primarily for the diagnosis of the adrenal medullary tumor, pheochromocytoma.[2] This test is performed only if the systolic blood pressure is 170 mm. Hg. or more, in order to secure a sharp "end point." A dose of 5 mgm. is given intravenously and the blood pressure must fall at least 35 mm. systolic and 25 mm. diastolic to be considered significant. Prior sedation and azotemia may give falsely positive results. In our experience the discovery of a pheochromocytoma has been aided more by a history of paroxysmal hypertensive episodes than by a specific degree of fall in systolic and diastolic pressure during the Regitine test. The histamine provocative test is used in place of the Regitine test when the systolic blood pressure is below 170 mm. Hg. We prefer Regitine as the initial agent to be used as a screening test for pheochromocytoma because of the occasionally alarming pressor response which has been seen following the use of benzodioxane.

**Dibenzyline:**

Like other adrenergic blocking drugs, Dibenzyline blocks sympathetic impulses travelling to the blood vessels at the peripheral effector site. Unfortunately its long-term use has been limited by its production of severe postural hypotension, tachycardia, and nasal stuffiness.

### Centrally Blocking Drugs

**Veratrum:**

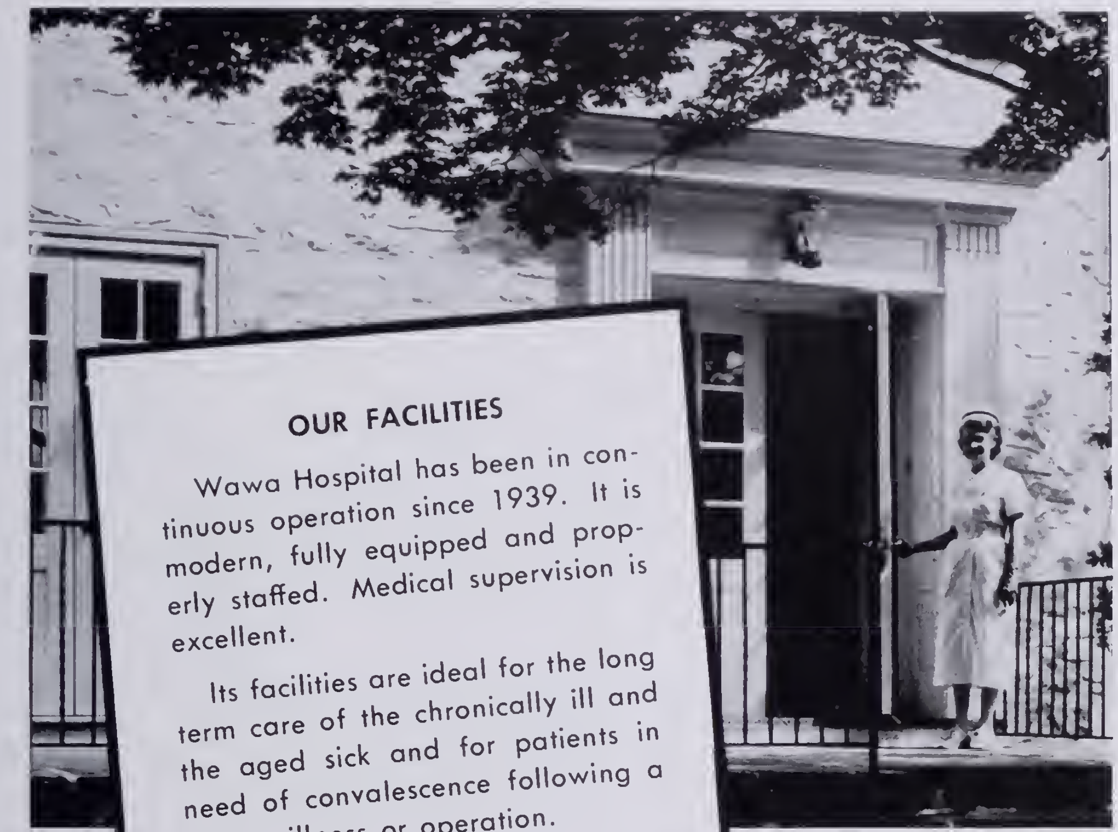
The veratrum drugs have both a hypotensive and a cardiac slowing effect; the latter may be reversed by atropine sulfate 0.6 mgm. without diminishing the hypotensive action. The starting dose is one tablet of Veriloid, Vergitryl, or Veratrite four times daily, increasing the dose by one tablet daily each week until an effective dose is reached. The usefulness of veratrum is limited because the therapeutic dose is almost equal to the dose which produces side effects of nausea, vomiting, and salivation.

**Protoveratrine:**

The preparation of a mixture of pure crystalline protoveratrine A and B from veratrum album has resulted in a drug of greater potency, but it, too, is limited by a narrow toxic to therapeutic ration. Veralba and Provell Maleate are given in a dose of 0.2 mgm. four times daily; each week thereafter the dose is increased by 0.2 mgm. four times daily to an average maintenance of 0.6 to 1.0 mgm. four times daily. In the patient receiving digitalis, bradycardia or cardiac arrhythmia may occur. The latter may result particularly after large intravenous doses of veratrum and can usually be abolished by atropine.

**Apresoline:**

In addition to being a central sympathetic antagonist, Apresoline is said also to have



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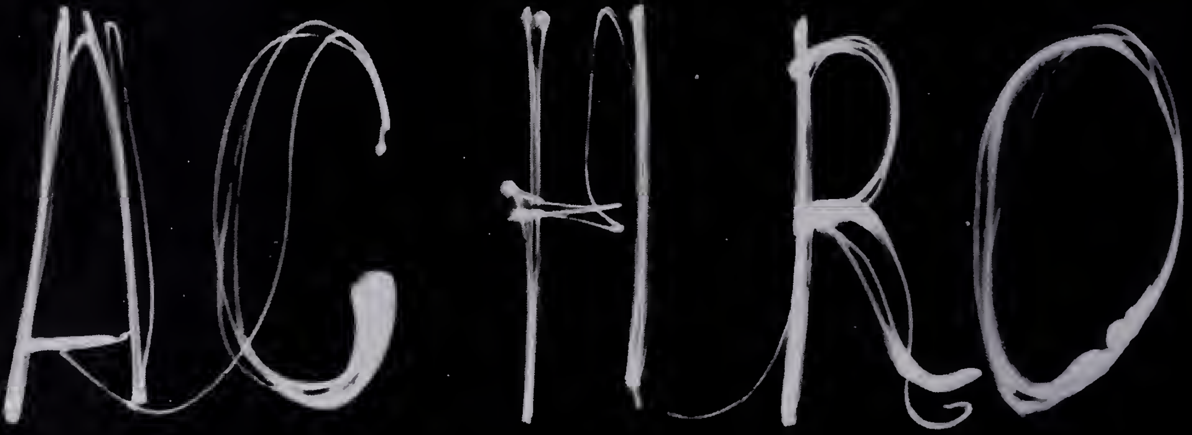

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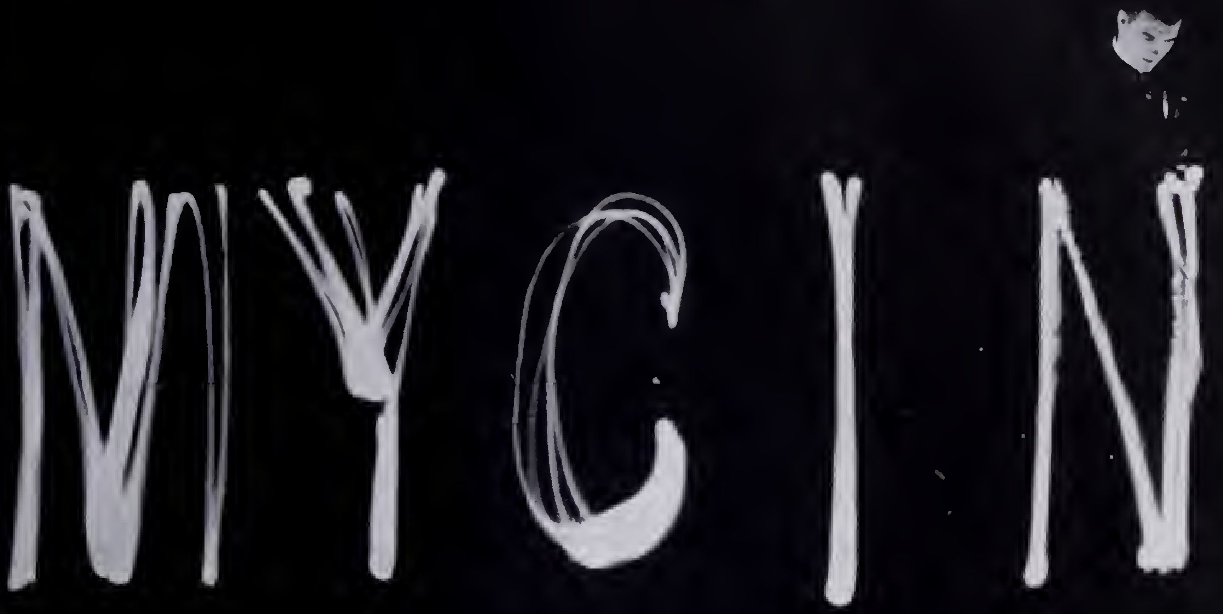

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an adrenergic blocking effect and antiserotonin action. It increases renal blood flow presumably by increasing the cardiac output and by producing widespread vasodilatation.[3] In patients with coronary artery disease, angina may occur or be aggravated by the use of Apresoline, and congestive failure may be accentuated. These side effects of Apresoline have been attributed to the tachycardia, increase in cardiac output, and lowering of aortic perfusion pressure produced by the drug.

For the first week of treatment a dose of 10 mgm. four times daily is recommended in order to lessen the initial annoying side effects, namely headache, nausea, tachycardia, palpitation and nasal congestion. The dose is then increased each week by increments of 25 mgm. four times a day up to a dose not exceeding 100 mgm. four times daily.

Occasional patients receiving large doses of Apresoline (over 400 mgm. daily) for periods of one year or more, have developed a syndrome characterized by arthralgia, or arthritis, and a clinical picture of disseminated lupus erythematosus. Since using Apresoline in a dose not exceeding 300 mgm. daily in combination with reserpine, we have not encountered this symptom complex.

### Rauwolfia serpentina and reserpine:

In the short interval since Wilkins introduced Rauwolfia serpentina in this country, it has become the most widespread agent for the treatment of hypertension.[4] Acting presumably at the hypothalmic level, it has both sedative and vasodepressor effects. The alkaloid reserpine is thought to be the active principle and has largely supplanted use of the whole root. Because of its mild effect it is recommended in the treatment of labile hypertension, in a dose not to exceed 0.25 mgm. twice daily. The onset of lowered blood pressure does not occur for from 4 to 7 days. The maximum effect appears after 3 to 4 weeks. More severe hypertension can sometimes be controlled by starting reserpine in a priming dose of 1 mgm. four times daily, decreasing this dose gradually over a one week period of time to a maintenance level of 0.25 mgm. twice daily. Use of the intravenous route for patients with disatolic pressures of 140 mm. Hg. or over is discussed under the section on management of hypertensive crisis.

Side effects most frequently encountered with reserpine are nasal congestion and drowsiness; less frequently patients may complain of a lack of initiative or a feeling of listlessness or apathy. Weight gain may be a problem in the obese patient, and an occasional patient may actually retain fluid. Depression is a side effect of major importance, but is fortunately of minor frequency. It seems to occur more often in patients receiving doses of reserpine greater than 1 mgm. daily over a long period of time. The sinus bradycardia produced by reserpine is often beneficial for the patient with labile hypertension bothered by tachycardia and palpitation. The bradycardic effect may be increased in the patient receiving digitalis.

### Reserpine combined with other drugs:

Probably the greatest usefulness of reserpine is found when given in combination with the more potent depressor drugs. It not only may act additively to potentiate their hypotensive effect, but also may permit these more dangerous agents to be used in a smaller dose. The laxative effect of reserpine may lessen the constipating effect of the ganglionic blocking drugs. Similarly, the cardiac slowing by reserpine may decrease the annoying tachycardia produced by Apresoline.

## GANGLIONIC BLOCKING DRUGS

There are four main autonomic ganglionic blocking drugs to be considered: hexamethonium, Ansolysen, Ecolid and Inversine. These are probably the most potent and potentially most dangerous anti-hypertensive agents now available.

### Hexamethonium:

The earliest of these agents to be developed, hexamethonium is absorbed erratically from the gastrointestinal tract when given by the oral route, thus making parenteral administration preferable in many instances. In the hospitalized patient a test dose is given intravenously with the patient sitting; thus allowing one to observe a full pharmacological effect by the appearance of postural hypotension. As a rule of thumb the effective intravenous dose may then be doubled and given subcutaneously or intramuscularly on a four to six hour schedule. The precaution should be taken to have the blood pressure checked with the patient standing, omitting the next dose of the drug if the blood pressure is below 180/100 mm. Hg.

**Ansolysen and Ecolid:**

The hope that Ansolysen would produce a more predictable hypotensive effect than hexamethonium has not yet been borne out by our clinical trials. Likewise, Ecolid seems to offer little advantage except, perhaps, by a longer duration of action (up to 8 to 12 hours).

**Inversine:**

Because of its uniform absorption when administered by the oral route, Inversine appears to permit greater dose-effect predictability in the individual patient. All of these agents in full dosage produce the side effects of autonomic ganglionic blockade, including constipation, which may progress to paralytic ileus, impairment of visual accommodation, sexual impotence, a dry mouth, and orthostatic hypotension which may result in peripheral circulatory collapse.

With all except Inversine, constipation may cause accumulation of the drug, thus giving rise to sudden hypotension. Laxatives usually are necessary. Patients are instructed to stop the ganglion blocking drug and to notify their doctors if a bowel movement does not occur each day. Prostigmine, 15 mgm. by mouth on arising, is usually helpful when laxatives do not produce the desired effect. Pilocarpine, 5 mgm. three times daily, may correct the associated visual disturbance due to the drug.

The recommended oral dosage for these four ganglionic blocking agents is as follows:

| Drug | Starting Dose | Maintenance Dose |
|---|---|---|
| Hexamethonium | 125 mgm. q.i.d. | 250-500 mgm. q.i.d. |
| Ansolysen | 20 mgm. t.i.d. | 100-200 mgm. t.i.d. |
| Ecolid | 25 mgm. b.i.d. | 50-100 mgm. b.i.d. |
| Inversine | 2.5 mgm. q.i.d. | 2.5-5.0 mgm. q.i.d. |

It should be restated that because of their potency and side effects, these agents are dangerous. There is considerable individual variability in dose so that their effective use requires meticulous medical supervision. Ganglionic blocking drugs should be avoided if there has been a recent cerebrovascular accident, myocardial infarction, or azotemia. Prostatic hypertrophy and pyloric stenosis constitute special contraindications because of the danger of aggravating existing obstruction in these regions.

### HYPERTENSIVE CRISIS OR ENCEPHALOPATHY

The most acute form of hypertension necessitating immediate emergency treatment has been termed hypertensive crisis or encephalopathy. Patients may have diastolic pressures of 140 mm. Hg. or greater, papilledema and signs of impaired cerebral function or even localizing neurological signs. Great caution should be used in the employment of anti-hypertensive drugs, since too precipitous a fall in blood pressure may be harmful to the patient by reducing the blood flow to vital organs. In the presence of neurological changes suggestive of a cerebrovascular accident, a drug of moderate potency is therefore desirable. We have found the agent of choice to be Hydergine, a dihydrogenated ergot preparation. The recommended dose is 0.6 mgm. intramuscularly every 4 to 6 hours, omitting a dose if the systolic blood pressure is lower than 200 mm. Hg.

An alternate agent for the treatment of hypertensive crisis is reserpine given intramuscularly in a dose of 2.5 to 5 mgm. The gradual reduction of blood pressure which this drug produces over a period of 2 to 4 hours offers a margin of safety possibly by permitting the cerebral circulation to adjust better to the lowered perfusion pressure. Though less satisfactory, Veriloid may be given intramuscularly in a dose of 1 mgm. every 4 to 6 hours.

The use of intravenous hexamethonium has been discussed previously. In our experience this presents so many hazards that it should be reserved for the patient who is refractory to other anti-hypertensive drugs.

### SURGICAL TREATMENT OF HYPERTENSION

It is important to know when medical treatment should be discontinued and surgical treatment performed. When the severely hypertensive patient fails to respond to highly potent anti-hypertensive drugs used at optimal dosage, then surgery should be considered. Continuation of an ineffective medical program frequently results in further vascular damage which will make the patient an unsatisfactory candidate for surgery.

Contraindications to surgery include (1) age beyond 55 years, (2) blood urea nitrogen of more than 20 mgm. per cent or phenolsulfonphthalein excretion of less than 15 per cent in the first 15 minutes and (3) myocardial infarction or cerebrovascular accident within the past six months. It is unwise to recommend discontinuing medical treatment in favor of operation unless a skilled and integrated medical-surgical team is available. Such a team has been active in the Hospital of the University of Pennsylvania for the evaluation of sympathectomy and related operative procedures.

The failure of thoracolumbar sympathectomy to produce uniformly a sustained improvement in blood pressure and the tendency toward relapse of blood pressure after one year, have provided a stimulus for our exploring the effectiveness of combined sympathectomy and adrenalectomy in the treatment of severe hypertension.[5]

During the past six years we have studied the effects of combining total or subtotal adrenalectomy with subdiaphragmatic sympathectomy in 148 patients.[6] This procedure appears to be followed by less postoperative morbidity and disability, and gives results comparable with the more extensive sympathectomy without, as yet, evidence of relapse. Thirty-nine per cent of severely hypertensive patients subjected to this combined surgical operation have shown an excellent clinical response. In an additional 16 per cent, the result has been considered fair. There has been encouraging improvement with respect to blood pressure levels, heart size and ocular fundi. Relief of congestive heart failure, angina pectoris, and headache has also been gratifying. We have encountered no great difficulty in the management of adrenal cortical hormone replacement after adrenalectomy; most patients requiring 25 to 50 mgm. of cortisone, 2 mgm. of desoxycorticosterone (DCA) and 3 to 6 grams of salt daily. Currently we are replacing DCA and salt with 9-alpha-fluorohydrocortisons in a dose of 0.1 mgm. daily. This is a potent mineralo-corticoid with respect to salt and water retention.

## Summary

The management of the hypertensive patient has been discussed and stress placed on special features relative to selection of therapy according to the severity of the disease. Emphasis is made on the detection of patients with specific forms of hypertension at the time of the initial examination.

Treatment of essential hypertension is directed not only toward lowering the blood pressure, but also of preventing or halting progressive vascular damage to vital organs.

It is emphasized that the drugs most potent in lowering blood pressure are those most fraught with dangerous side effects and that the mildest drugs are the least likely to produce serious toxicity. A good working knowledge of the use of these agents is necessary for successful management of the patient with hypertension.

The indications and contraindications for surgical treatment of hypertension are discussed. Our evidence to date indicates that the combination of adrenalectomy with subdiaphragmatic sympathectomy offers advantages over thoracolumbar sympathectomy.

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## Acknowledgments

In this report, I have been privileged to act as spokesman for a team of physicians in the Hospital of the University of Pennsylvania, among whom are included, Doctors F. C. Wood, I. S. Ravdin, C. C. Wolferth, W. A. Jeffers, A. G. Hills, S. B. Langfeld, J. H. Hafkenschiel, J. A. Mitchell, W. T. Fitts, J. A. Mackie, W. S. Blakemore, and fellows, residents, and interns on the Medical and Surgical Services.

# PANCREATIC MORBIDITY REVIEW BASED ON FOUR HUNDRED NECROPSIES ON ADULTS

O. J. POLLAK, M.D., Ph.D.

Pancreatic disease in the adult is not readily recognized during life unless it manifests itself as fulminating pancreatitis or as primary neoplasm. Pathologists encounter pancreatic alterations rather often.

Protocols of 400 consecutive necropsies of persons older than 20 years have been analyzed to study the incidence and variety of pancreatic disease.

In 80 of the 400 patients the pancreas was found to be diseased either on gross or on microscopic inspection. The average age of these 80 patients was somewhat higher than that of the total group. The number of white females was higher and that of Negro males lower among the 80 patients with pancreatic alterations than among the total series of 400.

In 14 patients (3.5% of 400, or 17.5% of 80) pancreatic disease was the primary cause of death. (See Table 2) In one of these patients recurrent hemorrhagic-suppurative pancreatitis resulted in fatal peritonitis. In one instance pancreatic disease was indirectly responsible for death: The patient died of diabetic necrotizing renal papillitis. Of the 65 patients in whom pancreatic disease proved not fatal, 34 died of cardiovascular disease, 13 (in addition to 5 primary pancreatic neoplasms) died of neoplastic disease and 22 died of miscellaneous causes.

TABLE 2
CAUSES OF DEATH IN 80 PATIENTS WITH PANCREATIC DISEASE

| | | | |
|---|---|---|---|
| 1. | Acute pancreatitis | 3 | § |
| 2. | Recurrent pancreatitis | 3 | § |
| 3. | Adenocarcinoma of pancreas | 5 | § |
| 4. | Adenocarcinoma of prostate | 1 | |
| 5. | Adenocarcinoma of sigmoid colon | 1 | |
| 6. | Adenocarcinoma of rectum | 3 | |
| 7. | Adenocarcinoma of stomach | 2 | * |
| 8. | Fibrosarcoma of stomach | 1 | * |
| 9. | Epidermoid carcinoma of esophagus | 1 | |
| 10. | Epidermoid carcinoma of bronchus | 1 | |
| 11. | Neurosarcoma of mesentery | 1 | |
| 12. | Adenocarcinoma of common duct | 1 | * |
| 13. | Adenocarcinoma of gall bladder | 1 | * |
| 14. | Cardiac decompensation | 5 | |
| 15. | Pulmonary embolism | 6 | |
| 16. | Multiple visceral infarctions | 1 | * |
| 17. | Cerebral hemorrhage | 7 | |
| 18. | Cerebral thrombosis | 1 | |
| 19. | Coronary artery stenosis | 1 | |
| 20. | Myocardial infarction | 12 | |
| 21. | Ruptured abdonimal aortic aneurysm | 1 | |
| 22. | Ruptured esophageal varices | 1 | |
| 23. | Cirrhosis of liver | 2 | |
| 24. | Hepatic coma | 1 | |
| 25. | Diabetic acidosis and coma | 4 | |
| 26. | Diabetic necrotizing papillitis | 1 | |
| 27. | Uremia | 1 | |
| 28. | Carbon monoxide poisoning | 1 | |
| 29. | Shock due to bullet wound | 1 | |
| 30. | Miliary tuberculosis | 1 | * |
| 31. | Caseous pneumonia | 1 | |
| 32. | Bronchopneumonia | 3 | |
| 33. | Bacterial meningitis | 2 | |
| 34. | Septicemia | 3 | |

§ Primary cause of death
* Metastasis to or invasion of pancreas

Among the 400 patients there were 22 with diabetes. In 12 of these the exocrine and the endocrine portions of the pancreas were altered. (See Table 3). In 7 patients no definite changes were noted in the islets, probably due to the common and crude technics and criteria employed by us. Only

TABLE I FREQUENCY OF PANCREATIC DISEASE IN AUTOPSY MATERIAL

| | TOTAL SERIES | | | PANCREATIC MORBID ANATOMY | | | |
|---|---|---|---|---|---|---|---|
| SEX & COLOR | No. | % | MIN. AV. MAX. AGE | No. | % | MIN. AV. MAX. AGE | PER CENT INCIDENCE |
| F W | 66 | 17 | 21-61-90 | 20 | 25 | 20-64-90 | 30 |
| F N | 53 | 13 | 22-50-84 | 12 | 15 | 36-52-65 | 23 |
| M W | 199 | 50 | 20-56-89 | 39 | 49 | 24-65-89 | 20 |
| M N | 82 | 20 | 21-50-85 | 9 | 11 | 21-67-72 | 11 |
| TOTAL | 400 | 100 | 20-55-90 | 80 | 100 | 21-60-90 | 20 |

F, Female; M, Male; W, White; N, Negro Percentages rounded

3 patients were without alterations in the acinar portion of the organ. All three died in acidosis. However, a fourth patient who died in diabetic coma had hyaline and fibrous changes in the acinar portion besides severe hyalinosis of islets. One "diabetic" patient died of recurrent hemorrhagic pancreatitis. Judging from the course and degree of his "diabetes" defective carbohydrate metabolism was more likely due to pancreatitis than to true diabetes mellitus.

TABLE 3
Various Forms of Pancreatic Disease
In 80 Patients

| | | | |
|---|---|---|---|
| 1. Acute hemorrhagic pancreatitis | | 1 | |
| 2. Acute hemorrhagic-suppurative pancreatitis | | 2 | |
| 3. Recurrent hemorrhagic pancreatitis | | 2 | 1 |
| 4. Recurrent hemorrhagic-suppurative pancreatitis | | 1 | |
| 5. Necrotizing pancreatitis | 2 | 6 | |
| 6. Necrotizing-suppurative pancreatitis | 2 | 2 | |
| 7. Fibrocystic pancreatitis | 1 | 1 | 1 |
| 8. Fibrotic interstitial pancreatitis | 4 | 20 | 4 |
| 9. Fibrotic perivascular pancreatitis | | 1 | 1 |
| 10. Fibrotic-cirrhotic pancreatitis | 1 | 1 | |
| 11. Edema, hyalinosis of exocrine tissues | 1 | 7 | 5 |
| 12. Edema, hyalinosis of endocrine tissues, only | | 3 | 3 |
| 13. Steatosis; involving at least 2/3 of organ | | 19 | 6 |
| 14. Hemorrhage, interstitial, traumatic | | 1 | |
| 15. Abscesses, metastatic | | 1 | |
| 16. Tubercles, metastatic | | 1 | |
| 17. Papilloma, ductal | | 1 | |
| 18. Adenocarcinoma, primary | | 5 | |
| 19. Adenocarcinoma, secondary | | 4 | 1 |
| 20. Fibrosarcoma, secondary | | 1 | |

° distended or cystic ducts
* diabetic patients

Although not all types of pancreatic morbid anatomy which occur in adults were represented, a good variety of conditions was encountered in our material. The etiology of these disorders was sometimes obvious but in many instances it could not be ascertained.

TABLE 4
Etiology of Pancreatic Disease in Adults

A. Traumatic lesions
 1. accidental (mainly hemorrhage)
 2. surgical (mainly edema)
B. Circulatory lesions
 1. functional (vagus irritation)
 2. organic
 a. stasis (edema)
 b. hypertensive (edema, hyalinization-islets)
 c. atherosclerosis (occlusive, constricting)
 d. thrombosis (infarction)
 e. embolism ("apoplexy")
 f. polyarteritis nodosa
 g. periarteritis (fibrosis)
C. Tryptic lesions
 1. malformations
 a. common channel (reflux of bile)
 b. duodenal diverticulum (duodenopancreatic reflux)
 2. ampulla (all causing stasis of secretions)
 a. spasm
 b. edema
 c. sialolith
 d. inflammation (chemical)
 e. neoplasia (papilloma; adenocarcinoma)
 3. ductal (all causing stasis of secretions)
 a. epithelial metaplasia (epidermization)
 b. edema
 c. sialolith
 d. inflammation (chemical)
 e. stricture, compression, obstruction
 f. neoplasia, (adenoma, cystadenoma, papilloma; fibroma, myxoma, lipoma, chondroma, lymphangioma; endothelioma, adenocarcinoma (I, II), sarcoma; islet adenoma)
D. Bacterial—toxic lesions
 1. ductal (non-specific)
 2. hematogenous (non-specific, tuberculous, luetic)
 3. allergic
 4. toxic (alcohol, neoarsphenamine, anesthetics)
E. Metabolic lesions
 1. steatosis (lipomatosis)
 2. hydropic swelling (intracellular edema)
 3. amyloidosis
 4. hemosiderosis
 5. "diabetic" (islet edema, hyalinosis, fibrosis, hydropic change of beta cells, degranlation or vacuolization of alpha cells, reduplication of basement membrane, loss of islet tissue; combinations)

Of the 80 patients with pancreatic alterations 24 had disease of the liver or bile passages (cirrhosis, 4; chronic hepatitis, 4; acute hepatitis, 1; steatosis, 1; cyanosis, 2: chronic cholangitis, 1; calculus cholecystitis, 8; adenoma of gall bladder, 1; adenocarcinoma of gall bladder, 1; adenocarcinoma of common duct, 1). The coincidence of pancreatic disease with liver-bile disease exceeds the frequency of liver-bile alterations in the total necropsy material. Obesity was prevalent especially among women with pancreatic steatosis. This accounts for the percentage increase of women among the 80 patients with pancreatic morbidity compared with the number of women in the total series. Only in ten per cent (8) of the 60 patients was there a definite history of alcoholism; the total number of alcoholics was most likely higher. Hypertension was frequent among the 80 patients. The overlap with vascular disease, namely with atherosclerosis, was marked. In five patients with pancreatitis thrombosis of the pancreatic arteries was present. A sixth patient whose pancreas was almost completely replaced by fatty tissue also had thrombi in the pancreatic arteries, coinciding with coronary thrombosis. Twelve patients with pancreatic alterations died of myocardial infarction due to coronary thrombosis. Coinciding coronary and pancreatic atherosclerosis was present in 52 of the 80 patients in varying degrees, of course. The number of patients who died of neoplasia was rather high but the number of patients with pancreatic alterations who died of cardiovascular disease was even higher.

The disproportion between clinical and anatomical statistics on the frequency and variety of pancreatic disease is marked. Pathologists could increase their figures if they would study multiple sections from various segments of the pancreas in every instance and employ more refined histologic and histochemical methods. Since signs and symptoms of pancreatic disease are very often indefinite or mild the clinician will overlook many cases unless laboratory tests of pancreatic function become as much a part of his routine as tests for urinary and blood glucose.

TABLE 5

LABORATORY TESTS OF EXOCRINE PANCREATIC FUNCTION

A. Duodenal fluid studies
  1. Fasting
  2. After stimulation
    a. olive oil
    b. secretin
B. Absorption tests
  1. gelatin . . . plasma glycin
  2. casein-I . . . fecal and urinary I
  3. cod liver oil . . . serum vitamin A
  4. neutral fat . . . chylomicron count
C. Serum enzymes
  1. Amylase
  2. Lipase
D. Urine enzymes
  1. Diastase
E. Feces studies
  1. enzymes
  2. fat and nitrogen assays
  3. microscopic study

Duodenal fluid studies include measurement of volume, pH, viscosity, bile concentration, quanitative assays of amylase, lipase, protease, carboxypeptidase, and chymotrypsin. Collection of the material requires skill. Refrigeration of the fluid is essential to preserve the enzyme pattern. Dilution with gastric fluid and bile causes alteration in volume, color and reaction. Stimulation of flow after intraduodenal instillation of olive oil and intravenous injection of secretin are, at present, research procedures.

Absorption tests are gaining in popularity. On ingestion of gelatin, plasma glycin rises sharply in healthy persons but not in patients with pancreatic disease.—Recovery of iodine in feces and urine after intake of casein labeled with $I^{131}$ can be used as a pancreatic function test.—Oleum percomorphum taken by mouth causes serum Vitamin A to rise.—The plasma chylomicron count increases after fatty meals, in healthy persons. No increase is found in patients with pancreatic insufficiency.

Serum amylase is the most commonly employed test for pancreatic disease. Increase is prompt and characteristic in the acute disease with impairment of flow of secretions. When the pancreas is non-functioning or where the acini are atrophied, serum amylase may drop below the normal level. Extrapancreatic enzyme production in salivary glands and liver should be considered. After the first 24 hours of acute disease determination of serum lipase becomes the preferred test. By using tributyrin instead of olive oil as the substrate the test can be performed fairly rapidly.

Urinary diastase which is identical with serum amylase can be measured easily. Normal renal function is a prequisite since impaired renal function can cause the serum level to rise. The limitation of this test lies in the variable urine volume and concentration.

Determination of pancreatic enzymes in feces has little value either, quantitative assay of fat to evaluate the degree of steatorrhea, or of nitrogen to measure the degree of azotorrhea is a valuable research method. Such assay is most useful in rating the efficacy of special diets and of pancreatin medication. Gross examination of stool specimens, using one's nose as well as eyes, replaces many a laborious chemical assay. Miscroscopic examination of feces is by far the simplest and most informative test available.

A pathologist's advice to clinicians to include gross and microscopic examinations of feces among routine laboratory procedures might be acceptable. His suggestion to modify the treatment of pancreatic disease and to instigate such regimen upon the slightest suspicion of pancreatic insufficiency might be considered presumptuous. However, one can hardly refrain from sharing clinical and anatomical observations, laboratory findings and results of animal experiments conducted in recent years.

In animals, hepatic steatosis precedes the deposit of lipids in the arterial wall. Inability of the liver to synthesize the various protein fractions in proper ratio or allow transfer of methyl groups for the formation of phospholipids results in plasmatic dyscolloidity. Lack of stabilizing albumin and lecithin facilitates precipitation of cholesterol—bearing lipoprotein molecules. Lipotropic medication allows liver cells to resume normal function. Animals in whom pancreatic tissue is destroyed by ethionine or guanidoacetic acid die in hepatic coma. Effects of these chemicals can be counteracted by methionine. Animals in whom pancreatic ducts have been ligated die promptly of hepatic failure unless treated extensively with pancreatin. The survival rate of animals with ligated pancreatic ducts is far better if antibiotics, especially sulfasuxidine or aureomycin, are added to the diet to depress bacterial amine formation and thus lessen the functional load of the liver. These antibiotics have been shown to prevent experimental liver cirrhosis. Results of this research already have been used advantageously to treat patients with kwashiorkor or mucoviscidosis.

Thus, in man, as in the animal, treatment should be directed toward promotion of regeneration of liver cells and pancreatic cells. This can be accomplished through the use of a high protein—high vitamin diet, lipotropic drugs, pancreatin and antibiotic therapy. Therefore this regimen seems to be at present the preferred treatment for interrelated pancreatic, hepatobiliary, and vascular diseases.

Pathologist, Kent General Hospital, Dover, Milford Memorial Hospital, Milford, Beebe Hospital, Lewes, Del., Assistant Prof. Path., The Hahnemann Medical College, Philadelphia, Pa.

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## WOMAN'S AUXILIARY

Last month, I attempted to discuss a few of our committees and their functions. With the New Year, I feel that it is an appropriate date to review many matters pertaining to our State Regime. I have found that attitude flexibility and adjustment to an ever changing pattern of activity is essential. The following is a list of the "Doings of Your President" and personal observations which I sincerely trust will be of interest—

October 20-21-22—In company with Mrs. J. M. Barsky, Sr., Program Chairman, I drove to Haddon Hall, Atlantic City, to represent Delaware at the meeting of the Woman's Auxiliary to the Pennsylvania State Medical Association. They are a very busy and interesting group.

The Workshop on Teen Age Nutrition was well presented. The importance of an educational program was stressed with information given on the nutritional values of certain foods, better meal planning, school lunches, and diets for teen agers.

Home Makers Service, a non-profit agency, in New Jersey, was a novel idea to me. Trained, mature women are placed in a household where mother or father is ill and assistance is needed. They serve a minimum of two hours or a maximum of six hours daily. These home makers are carefully screened and are given an instruction course at Rutgers University. Imagine the value of this person in the home of an aged couple who are not able to shop for food or even prepare a well balanced meal.

A Safety Skit, entitled "Your Bonnet With The Hazards On It," was presented by members, modeling hats, depicting "pitfalls" around the home. A traffic film and farm safety slides were also shown.

At the delightful tea, the past presidents created a striking portrait effect as each stepped into a large frame, wearing her inaugural gown.

October 31st—To Washington, D. C. and the Tri-State Hospital Meeting held at the Shoreham Hotel. Five different Hospital Auxiliaries presented their most outstanding money making project. Delaware was represented by a Junior Board Member from the Kent General Hospital, explaining their Junior Board Follies project.

November 1st—Attended the Institute at the Wilmington Armory on Medical Management of Casualties in Disasters. It is imperative that we be alert today to be alive tomorrow.

November 13th—Attended the regular monthly meeting of the Woman's Auxiliary to the Delaware State Hospital and the

Governor Bacon Health Center, of which I am pleased to be a member. Dr. Fritz Freyhan spoke of the new Research Building and the program that he will direct there.

November 21st—To the Hotel duPont's Gold Ball Room to represent the Auxiliary at the annual Christmas Seal Luncheon. This Delaware idea has become an American tradition all because of the faith. courage, and perseverance of Miss Emily P. Bissell.

November 22nd-December 2nd — By plane, with my husband, to Seattle, Washington, and the Clinical Session of the American Medical Association. Washington hospitality was most evident at all times. Some of the activities included, and I enjoyed, were—

1—A "Trip to the Orient."—Luncheon in true Oriental manner—chopsticks, gifts, and a fashion show of Western clothes.

2—A ferry trip to the Bremerton Navy Yard, a visit to the U. S. S. Missouri, and lunch at the Officers Club.

3—A trip to the Snoqualmie Ski Area and a chairlift to the very top of the mountain.

4—Delightful concert by the Seattle Symphony Orchestra.

5—The most glamorous event was the dinner given the Delegates to the American Medical Association and their wives. Salmon from Washington and potatoes from Idaho were enjoyed by all.

December 6th—State Executive Meeting at my home. All committee reports showed much interest and planning. A revised letter to help acquaint graduating high school seniors with the advantages of a career in nursing was presented, by Mrs. George Eriksen, and approved.

The program included a report, by Mrs. Otkar Pollack, on the Migrant Labor Conference held in Dover. Many factors such as: Welfare of Children, Health, Sanitation, and Housing are involved but not understood by many citizens of Delaware.

Mrs. Douglas Gay reported on the Disaster Institute and future program plans.

December 10th—To the Bissell Sanatorium Auditorium and the Home Safety Institute, sponsored by the Delaware State Board of Health and the Delaware Safety Council. We must all strive to stimulate and encourage education to safeguard health through safety, beginning at the home level. Carelessness, overwork and fatigue are the demons which harass the housewife and tired husband. "Do it yourself projects" are not always as profitable as the term implies.

December 12th—To the Mental Health Association of Delaware to preview several Mental Health films. Two films are shown each Wednesday at noon, and they have been well received. The cinescope of the "March of Medicine," depicting the treatment of the emotionally disturbed child, and narrated by Mr. Ben Grauer, will be presented on January 30th. The "in-patient" aspect of treatment was taken at our own Governor Bacon Health Center.

December 13th—To the meeting of the Woman's Auxiliary to the Delaware State Hospital and Governor Bacon Health Center. A tour of the main building's second and third floors revealed the remarkable changes that have taken place. Everything is new, from the plumbing to the furniture. It was quite evident that thoughtful planning and much effort were responsible for the improvements.

December 13th—To the Tower Hill School Auditorium at 8:00 P.M. for the premiere of a play entitled "Return to Thine Own House," presented by the American Theatre Wing. The one hour play deals with the readjustment of a former mental patient to his home, job, and social life. Its dramatic quality and its human appeal is recommended.

Mrs. H. Thomas McGuire,
President

# ✚ Editorials ✚

### DO AS I DO—

The New Castle County Medical Society recently resolved to encourage each of its members to seek periodic physical examinations by the physician of his or her choice. The immediate response was excellent and confirmed the opinion that many physicians do not have periodic checkups merely because of procrastination.

The periodic health examination is the cheapest form of life insurance available. It is unbelievable that those physicians who have not yet signified their willingness to comply are against periodic examinations in principle. Let us all, therefore, enter into the spirit of this project. Be examined wherever and by whomever you wish—but *be examined.*

### PRESIDENT DWIGHT H. MURRAY—

Under ordinary circumstances The Journal does not publish material usually found in other journals. Fully realizing that Doctor Murray's address will be widely published, it is reprinted here because of its obvious importance and with the thought that through this medium it might possibly be read by some individual who otherwise would not see it.

### EDITORIAL ADVISORY BOARD—

This is a new Board appointed by the President of the Medical Society of Delaware. The sole function of this Board is to stimulate interest in the Journal and to bring in material to the Editorial Office of a type desired by the membership as a whole.

The wisdom of appointing this Board and the optomism with which the Journal faces the future is reflected in the amazing turnout of fourteen members to the first meeting. Six of these members came from Kent and Sussex County.

This is truly *your Journal.*

# FREEDOM IN MEDICAL PRACTICE

Dwight H. Murray, M.D.
President
American Medical Association

Almost six months have elapsed since we last met to deliberate an act on medical affairs. The time has passed quickly, but not quietly.

The rumble of war and revolution has resounded in our ears. The din from political battles has been deafening.

All of us . . . sooner or later . . . learn that today's events do not just swirl around us, but involve each of us. As doctors we cannot get away from them by claiming that our only interest is in the sick, and that we cannot be bothered by political, social and economic problems. These matters demand attention from the doctor as well as the lawyer, the businessman, the newspaper editor, the labor leader and the worker.

If we are concerned about what happens on the international, national and local fronts—and we should be—then certainly we cannot afford to be disinterested in what happens in our own area of health and medical affairs. Yet there is apathy in our ranks.

### Replace Apathy with Active, United Profession

Today there is a greater need for a united, forceful and informed profession than ever before. We have been caught in the throes of a social revolution which demanded something for nothing. Changes have been taking place all around us, and medicine has not escaped unscathed.

For example, in a few days Public Law 569, the bill providing medical care for military dependents, becomes effective throughout the land. Contracts already have been signed with the government by the majority of our state societies. No longer can any doctor claim that this law

(Delivered at the opening session of the House of Delegates at the clinical meeting of the American Medical Association in Seattle, Washington, November 27, 1956.)

does not affect him. No longer can he say that government laws really are not changing the practice of medicine.

Public Law 880, better known to all of us as H.R. 7225, is another case in point. Medicine now is facing the problem of protecting the taxpaying public from abuses and of cooperating with the government to carry out the provisions of the law. The law is now on the books, and we must provide the leadership necessary to make it work as well as possible.

It was encouraging to hear Ezra Taft Benson, secretary of agriculture, say last week before the American Association of Land Grant Colleges and Universities:

"Sooner or later, the accumulation of power in a central government leads to a loss of freedom. . . Raids on the federal treasury can be all too readily accomplished by an organized few over the feeble protests of an apathetic majority. With more and more activity centered in the federal government, the relationship between the cost and the benefits of government programs becomes obscure. What follows is the voting of public money without having to accept direct local responsibility for higher taxes . . .

"If the present shift of power from state to federal authority which started 25 years ago is allowed to continue, the states may be left hollow shells."

It was encouraging to hear such comments from a member of the President's Cabinet. I only wish that all members of the official family, and more important, every member of the United States Congress, felt the same way.

The expression of this philosophy, with which medicine so heartily agrees, sounds good, but putting it into practice is the thing we are really interested in.

Today the medical profession along with business and industry is caught between those who desire to promote sound government and those who desire even more intensely to perpetuate party power. Unfortunately, in recent years a benevolent federal government appears more attractive to the voting public than the preservation of individual freedom. Medicine must do its utmost to reverse this trend.

### MEDICAL FREEDOM ESSENTIAL

In my travels around the country as your representative the last 18 months, I have seen little dissension or rancor within our ranks. However, I must report that I have seen too much complacency over governmental encroachment into medical affairs. And I am deadly serious when I say to you that apathy by the few, or by the many, can be detrimental to all.

No nation can merely reap the benefits of freedom; it also must sow seeds of freedom.

In medicine the situation is the same. If an apathetic medical profession takes its freedom for granted, it will be the beginning of the end. A strong, free profession must work for freedom so that it may live in freedom. And history tells us that once medicine loses its freedom, other fields of private endeavor are immediately in danger.

I do not wish to paint a dark or distorted picture of medicine's free status and its stature in America today. But I do believe words of caution and an appeal for vigilance are in order.

The road of apathy and disunity can only lead to disorder and perhaps disintegration, and we must sound a warning to all our colleagues who don't care, or who are pulling in the opposite direction. The road of alertness, action and unity is the proper road for all of us to be traveling together.

If I had just one wish for the coming year, it would be to command the time and talents of the 160,000 physicians in the American Medical Association. I would set us all to the task of emphasizing and reemphasizing the absolute necessity of patient and professional freedom.

### PATIENT'S RIGHT TO CHOOSE HIS DOCTOR

I believe it is one of our prime responsibilities to prove to our patients that their right to choose their doctor is a most important one.

Free choice brings a bond of confidence between doctor and patient which no compulsory medical system can create. It means that the patient knows the physician will be interested in him as a person, not as just a serial number of the 2:45 appendicitis case.

For the doctor free choice means that the patient has selected him for his abilities, training, sincerity and personality. When a patient comes into my office, I know he has made a choice. And from that moment there begins a physician-patient relationship of the highest order. To me the patient is someone special, and I in turn hope I am someone special to him.

Once the patient has made his choice, the physician automatically assumes an unqualified responsibility to the patient. No system of medical care that uses a third party to bring doctor and patient together can match our kind of cooperative performance for the treatment of illness, the cure of disease and the betterment of the patient's health.

Freedom to select a doctor is part of everyone's great freedom to choose — to choose what he wears and eats; where he works and worships, and how he votes. Take away any part of this freedom and great damage is done to our democratic system.

## FREE CONDUCT IN MEDICAL TREATMENT

Another freedom closely tied to freedom of choice is freedom in the conduct of medical treatment.

As the recent meeting of the World Medical Association in Havana, Cuba, Dr. Rolf Schloegell of Germany made a stirring defense of free conduct of medical treatment. He told us that the medical profession believes the attending physician alone is competent to decide what measures he deems necessary and will apply in order to bring about the desired improvement. He warned too of the danger of excessive restriction on the freedom of the patient and the attending doctor.

Yet the trend toward extending social security in the medical care field has been steady and has accelerated since the end of World War II.

The dangers of shifting responsibilities for medical care from the patient and doctor to the government are obvious. The caliber of medical care cannot be as high when both patient and doctor are dependent upon government. Initiative succumbs to dictation, and self-reliance is replaced by the crutch of government.

We do not deny that there is an area of legitimate concern by the government for the health and welfare of the people. But each year government seems to extend that area. We get some idea of this expansion from the new federal medical budget.

This year, according to our Washington Office, the average family will be paying $54.61 for the U.S. Government's health and medical activities. And the total expenditures this year amount to 2½ billion dollars — 290 millions more than last year. Even in an over-all federal budget of 61 billion dollars, the total health cost of 2½ billions is not insignificant. It is a billion dollars more than the cost of running the Commerce Department, half a billion more than the Agriculture Department and six times more than the Interior Department's budget.

Many expenditures obviously are necessary to keep up our unsurpassed public health standards, and research may pay rich dividends in scientific discoveries. But there is no doubt that much money is being spent on medical activities that should not involve government participation.

The trend is to spend more and more government money on health and medical matters because it is good politics. Apparently many Americans still want to see government in the role of a big brother, dishing out so-called gifts and bargains under the guise of benevolent economic planning.

I believe it is our duty, as it is everyone else's, to combat the attitude of "what's in it for me?" and to promote the long-honored creed of "what's best for all Americans and our free society?" I think that a nation can drift into state medicine inch by inch just as surely as if the scheme were foisted upon a people overnight. The "drift" method may take longer but the result will be the same.

So it is time all of us sounded the alarm against soft and superficial security and against the invasion of personal responsibility. It is time we stood up together for militant freedom and for full rights and responsibilities of the individual.

### BELGIAN DOCTORS TURN BACK GOVERNMENT

There is no better example of what a unified medical profession can do than in the story of the recent fight of the Belgian doctors against the government's proposals for a state service of medicine.

Without consulting the medical profession the Belgian government proceeded to draft rules and regulations of health to be incorporated in the nation's social security legislation. Under the proposals doctors were to sign an agreement to abide by the present rules and any later regulations. For the patient there would be the usual red tape in getting medical care.

When the Belgian doctors learned of the scheme, they met in conference with the government. They told the government what they wanted and what they would not accept. The government agreed.

For several months everything was quiet. Then the Belgian doctors suddenly read about the new health bill that the government was sending to Parliament. It was quite contrary to the earlier agreement worked out by the profession and the government. But the bill was passed quickly.

The Belgian medical profession protested and said it would not be placed under the Ministry of Labor. Instead the doctors proposed to set up their own plan of medical assistance.

Before long, the government saw that the medical profession meant business and that the doctor's plan was an attractive one. So it declared that its own bill was not in force and could not be in force without the consent of the medical profession.

To me this fight against legislative intervention in medical care is excellent evidence that the profession can defend itself if it unites to defend the basic principles of freedom and if it offers constructive proposals. By using the Belgian national motto, "in union there is strength," the medical profession showed doctors everywhere that dangerous government plans can be turned aside by the strong.

I also read recently in the Journal of the World Medical Association of the fight of the medical profession of Malta against a British government scheme to introduce a full-time salaried medical service, without the right of private practice, on an island dependency of Malta. Here again the doctors reacted with unity and strength, and successfully thwarted the government's plan.

There is a lesson in these stories from Belgium and Malta. They prove that a unified profession has a great political power for good — the good of the patient, the doctors and the nation.

### CONFIDENCE AND UNDERSTANDING NEEDED

While we are developing unity within our own ranks, I believe it is equally important to continue to build up the confidence and respect of our patients and to make our legislators aware of the necessity for freedom in medical practice.

Let us never reduce the quality of service we render to our patients, and never lose the personal touch in medicine. Where there is any opportunity to improve upon our medical care, let us seize it and show our abilities to do an outstanding job. Satisfied patient-customers will give us deserving support when we need it.

We also should realize that the destiny of medicine can be determined to a large degree in the halls of Congress. If this be true, then it is even more important that we take an even greater interest in those who elect the Congressmen. Sympathetic understanding of our position by federal legislators through the voting public will be an insurmountable deterrent to the forces supporting state medicine.

The day has come, gentlemen, when we can no longer look upon medical economics and social changes merely as issues to be considered during our limited leisure hours. Our interest in them cannot be superficial or intermittent.

We now must pay daily attention to these matters. Medical socio-economic affairs can no longer be just incidental with us. They must be a vital part of our life and of our profession.

Each of us, I believe, should dedicate himself to the words included in the oath of office taken by Presidents of the A.M.A.

"I shall champion the cause of freedom in medical practice and freedom for all my fellow Americans."

As doctors, representatives to the A.M.A. and as spokesmen for the A.M.A., let's remember these words and live by them. And to alter a phrase of President Lincoln's only slightly: Let's make common cause to keep the good ship of medical freedom on this voyage, or nobody will have a chance to pilot her on another voyage.

## BOOK REVIEWS

Clinical Pathology. Application and Interpretation. By Benjamin B. Wells, M.D., Ph.D. Director of Clinical Investigation, The Lynn Clinic, Detroit. Former Professor of Medicine and Chairman of the Department of Medicine, Creighton University School of Medicine, Omaha. Cloth. $8.50. Pp. 448 with 25 illustrations. W. B. Saunders Company, Philadelphia-London. 1956.

This book as the title states is primarily a guide in the application and interpretation of clinical laboratory studies. It is offered to physicians and medical students so that they may select, apply, and interpret all laboratory methods according to the needs of the patient. The purpose of the book is entirely practical and just enough theory and methodology are included to give proper meaning to the procedures or to define their limitations. Emphasis is placed on the fact that laboratory procedures serve only as aids in diagnosis and on the fact that the elimination of unnecessary tests in clinical problems makes for a better understanding of the clinical laboratory and also for the better practice of medicine.

The book is divided into ten chapters. These include chapters on the major systems, a chapter on the infectious diseases, special chapters on clinical laboratory studies in surgery and obstetrics, and a final chapter on laboratory procedures. The first chapter on Infectious Diseases presents a wealth of material in concise form of the common laboratory procedures performed and their interpretation in the various diseases. Also included is a discussion of the virus and rickettsial diseases and the newer tests used in their diagnosis. There is a discussion of the Treponema Pallidum Immobilization Test for syphilis. The chapters on diseases of the Gastrointestinal System, the Cardiovascular System, the Respiratory System and the Urinary System present the diseases and develop them only as they pertain to the more urgent and frequent needs of medical practice. The material is arranged exactly as the physician uses it. Beginning with a clinical problem, useful laboratory tests are named and discussed. The two chapters on Diseases of the Blood and the Metabolic and Endocrine Disorders make frequent use of charts for the orderly presentation of tests used in differential studies.

Of special interest to the Obstetrician and the Surgeon are the chapters on the laboratory studies commonly used in these specialities. Tests used in electrolyte studies, water balance, and acid-base studies are discussed. The last chapter on Laboratory Procedures present those procedures that can easily be performed in an office laboratory.

The book is strongly recommended for the library of all physicians whether they are in general practice or in one of the specialities and for medical students. The intelligent use of laboratory data is invaluable.

J. V. C.

Diseases of the Heart. By Charles K. Friedberg, M.D., Attending Physician, The Mount Sinai Hospital, New York; Associate Clinical Professor of Medicine, College of Physicians and Surgeons, Columbia University. 1161 pages with 157 illustrations. Cloth. 1956. 2nd edition. W. B. Saunders Company, Philadelphia. $18.00.

Your reviewer had the privilege of reviewing the first edition of this book in 1950 and said that it was "without doubt the best text on the subject in the English language". The new edition is better than the first.

The text has been lengthened by the inclusion of a section on graphic methods of examination. This seems to be an improvement over the first edition where methods were discussed only in the sections describing specific diseases. There are twice as many illustrations and, in general, they are of better quality than those in the first edition. In keeping with newer ideas in typography, the type is set in double column for ease in reading.

Not infrequently the author of a successful text will coast along with the first edition, merely adding a few notes from time to time. Those who know Doctor Friedberg realize that he could not do this and the work expended upon this edition has been equal to that used in writing a new book. It is amazing that some of the material found in this text has just reached the stage of journal publication!

This book is without doubt the best text on cardiology in existence and should be owned by every physician who sees a cardiac patient in practice.

A. H. C., Jr.

PHYSICAL DIAGNOSIS by Ralph H. Major, M.D., Professor of Medicine and the History of Medicine, and Mahlon H. Delp, M.D., Professor of Medicine, University of Kansas. 358 pages, with 536 illustrations. 1956. 5th edition. W. B. Saunders Company, Philadelphia. $7.00.

This book is complete, concise and alive with excellent illustrations which point up admirably the significance and importance of the many details and signs in physical diagnosis. Its short but complete summary of good history taking further emphasizes the importance of detail and accuracy in the physical examination.

Books on this subject in the past have tended to be dry and uninteresting. Here, however, the student's interest is not only aroused but maintained.

L. B. F.

PRINCIPLES OF CLINICAL ELECTROCARDIOGRAPHY. By Mervin J. Goldman, M.D., Assistant Chief of the Medical Service and Cardiologist, Oakland Veterans Administration Hospital, Oakland and Assistant Clinical Professor of Medicine, University of California School of Medicine, San Francisco. 310 pages, paper. 1956. Lange Medical Publications, Los Altos, California. $4.50.

This book is replete with excellent information. The outstanding feature is the large number of illustrations, approximately two per page. This alone puts the book in a class by itself.

To make possible such profuse and excellent illustrations at a reasonable price it was necessary to reproduce the book by the offset process. This resulted in the only weak feature — type size too small to permit prolonged study. It is hoped that this minor fault will be corrected in subsequent editions.

This book is recommended without reservation for anyone interested in electrocardiography.

A. H. C., Jr.

*The following article appeared as a guest editorial in the August issue of the Pennsylvania Medical Journal. It is reprinted here in its entirety by courtesy of Dr. Shelley and the editor of the Pennsylvania Medical Journal.*

## ON READING A MEDICAL PAPER

Medical societies are in a most luxuriant phase; more meetings are being held than ever before. In many metropolitan areas, a little determination can place a physician in at least one scientific meeting a day. With this accelerated state has come increased opportunities for presenting medical observations to fellow doctors, i.e., *reading a medical paper*. It has been my feeling that the technique of this significant activity has not received enough attention. One reason is that the audience is largely inarticulate, at least beyond the formality of applause. As a frequent member of this medical audience, I would like to record some thoughts I have had on reading papers. These are personal views, but I have reason to believe they may be commonly held, although infrequently expressed.

The first thing I plead is that I not be overwhelmed by an avalanche of data, observations, and ideas. Many speakers simply crush the average listener with literally hundreds of new facts, all carefully posted on slides. The listener refusing to operate on a Univac level turns off his motors and moves over to a pleasant autistic realm. The pernicious habit of presenting techniques and detailed data appears to have developed because man is capable of reading aloud at a rate of 200 words per minute. This permits the speaker, *if he reads* a manuscript, to release the bulk of his findings to the audience. With the use of slides hundreds of numerical figures can be added. All in all, it is a fine *tour de force*, but it often leaves the audience exhausted yet uninformed, or worse, indifferent to the speech.

I would urge that medical talks be *talks*. As such, they can effectively transmit ideas and leave the audience informed and stimulated. I have long noted how a colleague can enthrall you with his experiences as recounted over the hospital dining room table, yet these same experiences are boring when read as a formalized paper in staff conference. The need to be scientific and precise can at times have a most deadening influence. Speakers should recognize that the audience is their friend. Give a friendly narrative account, therefore. Remember, no one can truly evaluate your findings on the basis of a talk. He must turn to the published paper for the detailed prolonged study of methodology and data. The short speech serves solely to transmit your singular idea on the topic. The longer speech should be used to present a broader concept or scheme of things rather than the showy display of even more data in depth.

Be sympathetic to the fact that the live audience has no real power to skim or skip, so that the speech should be a significant one. Too often speakers request or accept program time for the presentation of data which is better never presented verbally. I refer to the negative finding, the reference data of interest to very few, and finally to the "ectopic paper" floundering before the wrong society. A brilliant address on backgammon will be poorly received by the philatelic society, although clever titling may win it a place on the program.

Finally, I will count myself fortunate at the next meeting I attend if at least one of the speakers *talk* as one who wants me to know and to feel the native simplicity of his particular idea. The idea should take precedence over the smothering data, oratory, and elegent phrasing which so often accompany the *reading of a paper.*

Walter B. Shelley, M.D.,
Philadelphia, Pa.

Position vacancy, General Practice Residency, two years, Stanislaus County Hospital, Modesto, California, 400 beds, hospital fully approved by the Joint Commission of Accreditation; Salary — $500.00 per month. Address communications to Dr. Allan A. Craig, M.D., Stanislaus County Hospital, Modesto, California.

## MEANING: AWOL

*To the Editor:* The gobbledygook and abbreviations used in the federal officialese language are w.k. and much commented on. Perhaps the development of a similar but different language in our h. records is not so w.k. This new branch of the language might well be called doctorese. It varies from h. to h. and s. to s. Pretty soon interpreters will have to be obtained by any consultant who sees a patient even in his own h. Here is a prize example from the B.H. of B.,M.:

> "N.B.: My impression is that the patient's M.S. while enough to produce R.V.H. by Px, has been sorely aggravated by A.S.H.D. which addition has ppt. C.H.F."

If anyone is interested, here is a glossary:

| | |
|---|---|
| N.E.J.M. | *New England Journal of Medicine* |
| B., M. | Boston, Massachusetts (not bowel movement) |
| h. | hospital |
| w.k. | well known |
| s. | service |
| B.H. | blank hospital |
| N.B. | *nota bene* (the only valid abbreviation in this letter) |
| M.S. | mitral stenosis, not morphine sulfate |
| R.V.H. | right ventricular hypertrophy |
| Px. | physical examination, not post-exchange |
| A.S.H.D. | arteriosclerotic heart disease |
| ppt. | precipitated |
| C.H.F. | congestive heart failure. |

V.T.Y.

B., M. C.C.L.

*(This letter was published in The New England Journal of Medicine on June 14, 1956 and is reprinted here by permission of the Editor.)*

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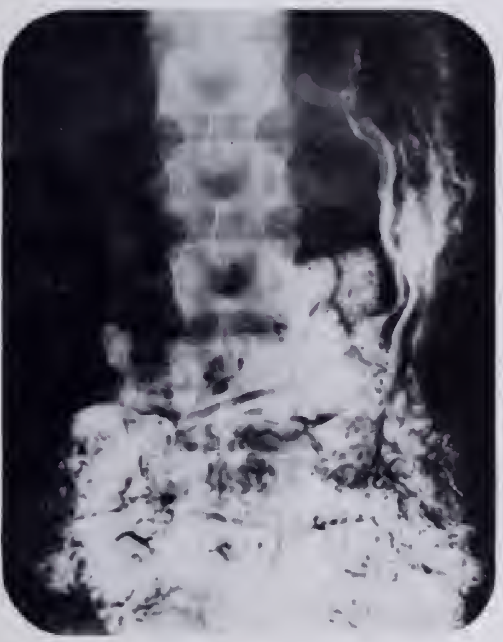
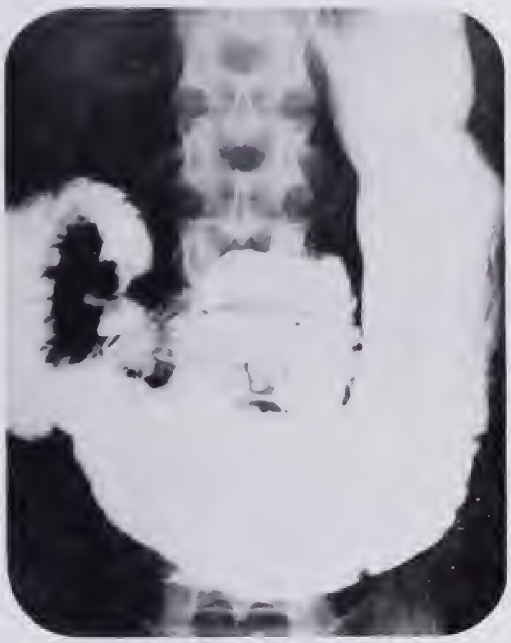


*Posterior-anterior film: definite hyperperistalsis with poor duodenal visualization.**



*Posterior-anterior film after 15 mg. of Pro-Banthīne intramuscularly: chronic duodenal ulceration clearly disclosed.*

The same anticholinergic action which has made Pro-Banthīne (brand of propantheline bromide) the outstanding therapeutic agent in peptic ulcer has also proved valuable in diagnosis.

By controlling the hypermotility, Pro-Banthīne may permit delineation of a lesion otherwise not clearly visualized.

The technic is simple: If the first set of films shows hypermotility but no filling defect is demonstrable, reexamination is done a few minutes after intramuscular injection of 15 mg. or a half hour after oral administration of 30 mg. of Pro-Banthīne.

This procedure has the additional advantage of demonstrating the patient's response to a given dosage of the drug.

G. D. Searle & Co., Chicago 80, Illinois, Research in the Service of Medicine.

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*Roentgenograms courtesy of I. Richard Schwartz, M.D., Kings County Gastrointestinal Clinic, Brooklyn, N. Y.

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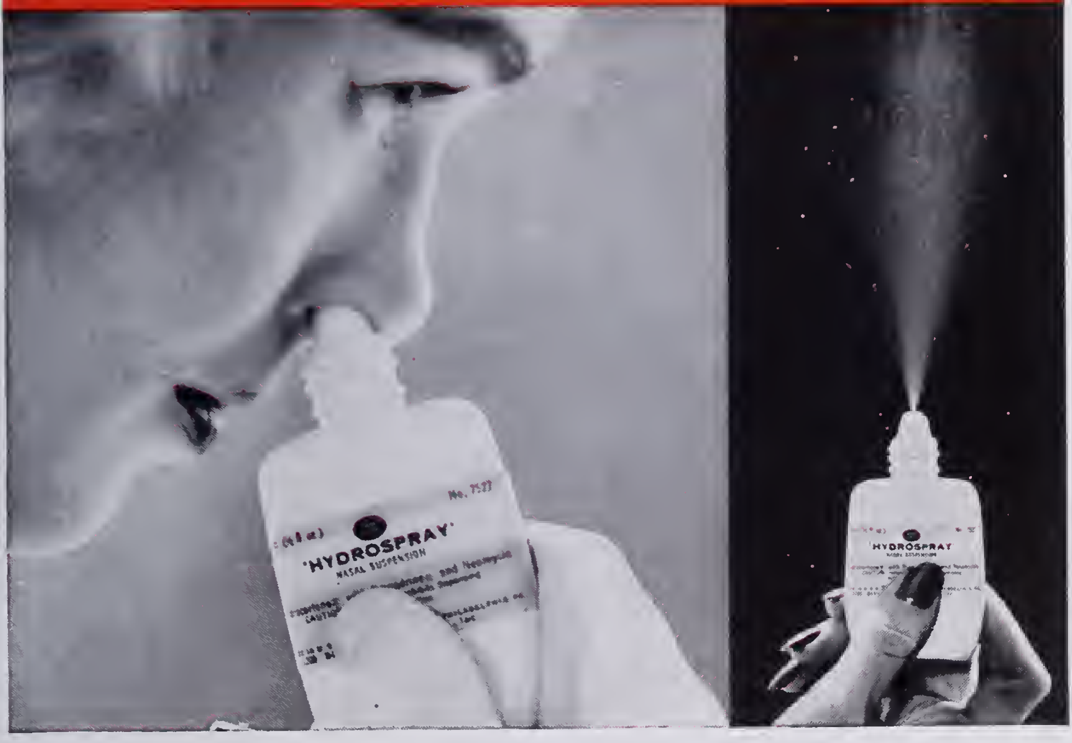

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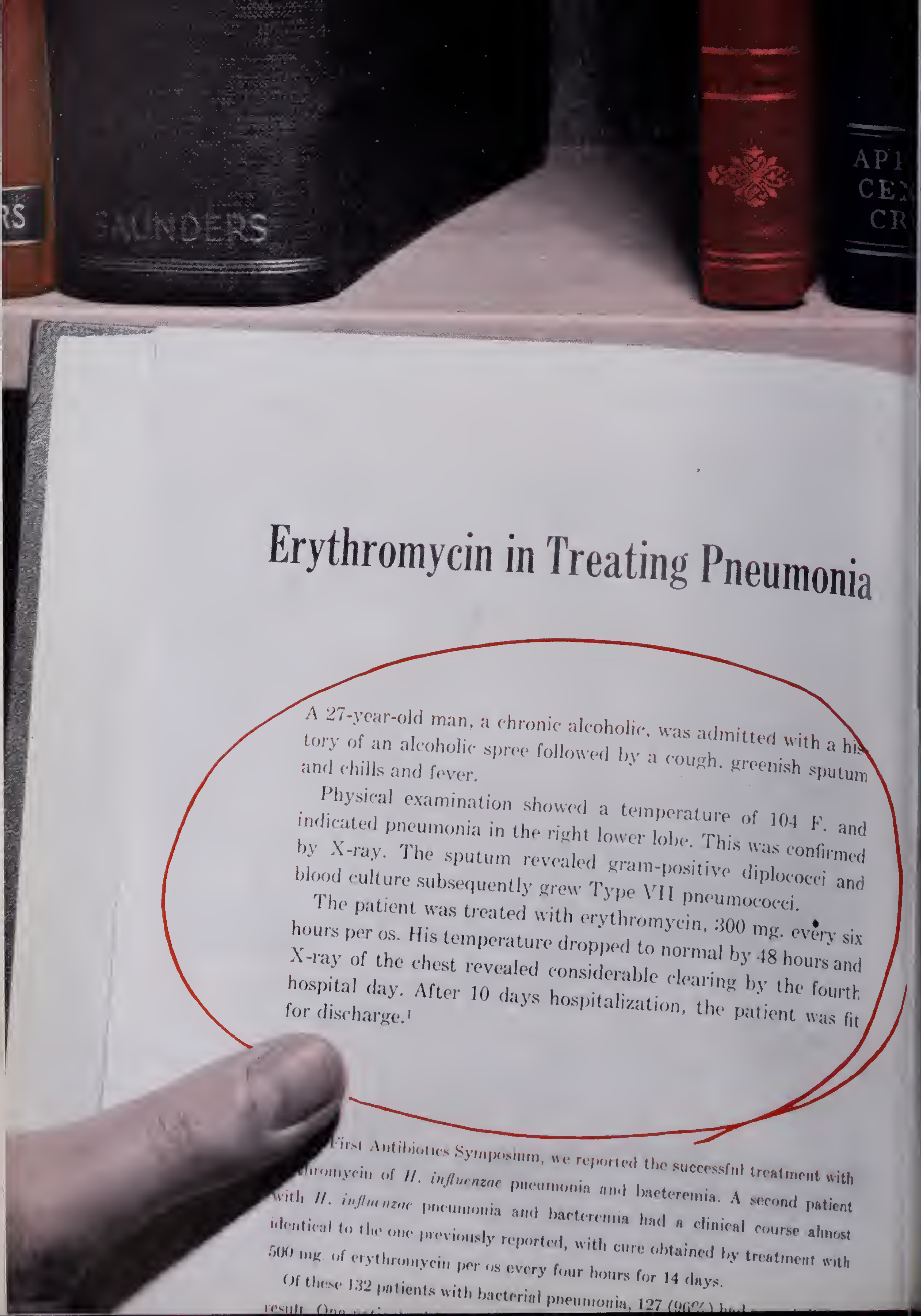
**REFERENCE:** 1. Silcox, L. E., *A.M.A. Arch. Otolaryng.* 60:431, Oct. 1954.



# Erythromycin in Treating Pneumonia

A 27-year-old man, a chronic alcoholic, was admitted with a history of an alcoholic spree followed by a cough, greenish sputum and chills and fever.

Physical examination showed a temperature of 104 F. and indicated pneumonia in the right lower lobe. This was confirmed by X-ray. The sputum revealed gram-positive diplococci and blood culture subsequently grew Type VII pneumococci.

The patient was treated with erythromycin, 300 mg. every six hours per os. His temperature dropped to normal by 48 hours and X-ray of the chest revealed considerable clearing by the fourth hospital day. After 10 days hospitalization, the patient was fit for discharge.[1]

First Antibiotics Symposium, we reported the successful treatment with hromycin of *H. influenzae* pneumonia and bacteremia. A second patient with *H. influenzae* pneumonia and bacteremia had a clinical course almost identical to the one previously reported, with cure obtained by treatment with 500 mg. of erythromycin per os every four hours for 14 days.

Of these 132 patients with bacterial pneumonia, 127 (96%)

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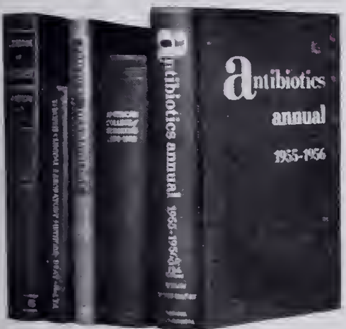

1. Romansky, M.J., et al., Antibiotics Annual 1955-1956, p. 48,
2. Waddington, W. S., Maple, F. C., and Kirby, W. M. M., A.M.A. Archives of Internal Medicine, 1954, p. 556.

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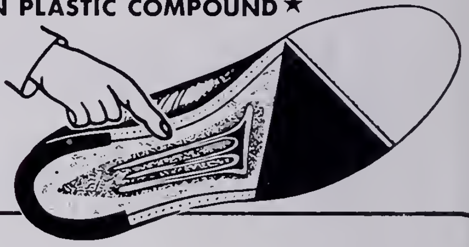

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Much of the information contained in this Roster will change with time. Prompt notification of changes, or of corrections in this tabulation, will be much appreciated.

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| ALR | Otology, Laryngology, and Rhinology | P | Psychiatry |
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| Hon | Honorary Member | R | Radiology |
| I | Internal Medicine | Res | Research |
| In | Industrial Medicine | Ret | Retired |
| L | Legal Medicine | S | Surgery |
| N | Neurology | T | Tuberculosis |
| NS | Neuro-Surgery | U | Urology |
| O | Opthalmology | VA | Veterans' Administration |
| Ob | Obstetrics | | |

### 328 NEW CASTLE COUNTY

| Name | Address | Specialty | Tel. | School | Licen. | Joined |
|---|---|---|---|---|---|---|
| obiss, Joseph W. | Memorial Hosp. | Pa* | OL 6-3351 | Birm., Eng., 1942 | 1952 | 1957 |
| kerman, Joseph L. | Delaware Hosp. | R* | OL 4-5211 | G. Wash., 1948 | 1949 | 1951 |
| kins, James P. | Delaware Hosp. | An* | OL 4-5211 | McGill, 1945 | 1949 | *1956 |
| kman, Everett M. | Professional Bldg. | Pr* | OL 4-7661 | Indiana, 1918 | 1934 | *1940 |
| tken, Douglas H. | 2099 DuPont Building | I* | OL 2-3311 | Jeff., 1943 | 1949 | 1950 |
| den, Carmi R. | 54 E. Main St., Newark | ObG.* | EN 8-1613 | Tufts, 1919 | 1955 | 1956 |
| den, John W., Jr. | Delaware Hosp. | R* | OL 4-5211 | Jeff., 1942 | 1943 | *1948 |
| len, Olin S. (Hon.) | Springfield, Pa. | Ret. | | Med-Chi., 1916 | 1917 | 1919 |
| llen, Olin S. II | Reading, Pa. | | | Temple, 1952 | 1953 | 1954 |
| llen, Richard E. | Memorial Hosp. | An* | OL 6-3351 | Hahn., 1931 | 1947 | *1947 |
| nderson, Leon V. | 826 Poplar St. | | OL 8-4995 | Howard, 1929 | 1931 | *1948 |
| rminio, Joseph A. | Professional Bldg. | S* | OL 4-6245 | Yale, 1946 | 1951 | *1953 |
| acon, Alfred E. Jr. | 1003 Delaware Ave. | I* | OL 6-2567 | Yale, 1949 | 1950 | 1956 |
| aganz, Herbert M. | 1210 Delaware Ave. | I* | OL 5-3329 | Penn., 1947 | 1951 | *1954 |
| ailey, Walter L. | 501 Delaware Ave. | Or* | OL 6-1624 | Md., 1940 | 1949 | *1950 |
| aker, Frank W., Jr. | 207 S. Maryland Ave., | | WY 4-7414 | Hahn., 1951 | 1951 | 1954 |
| aker, Thomas H. | 3100 New Road | | WY 8-8645 | Jeff., 1930 | 1931 | *1932 |
| ancroft, Charles M. | 1005 N. Rodney St. | A* | OL 2-2562 | Jeff., 1938 | 1939 | *1941 |
| anton, Conwell | 924 French St. | Ret. | OL 2-1932 | Penn., 1900 | 1901 | 1946 |
| arnhart, John W. | 1303 N. Franklin St. | I* | OL 2-2547 | Penn., 1941 | 1946 | *1947 |
| arsky, Joseph M., Jr. | 710 West St. | | OL 4-7756 | Jeff., 1947 | 1948 | *1949 |
| artoshesky, Stephen W. | 830 Spruce Street | | OL 5-7282 | Jeff., 1944 | 1945 | *1948 |
| eatty, Gerald A. | 503 Delaware Ave. | I* (T) | OL 8-4356 | Jeff., 1930 | 1931 | *1932 |
| eck, Joseph R. | 904 Delaware Ave. | U* | OL 8-4347 | Penn., 1933 | 1935 | *1935 |
| enge, John | 114 Murphy Rd., Deerhurst | I* | OL 2-1920 | Penn., 1947 | 1948 | *1954 |
| enning, Charles H. | Public Building | PH* | OL 8-7121 | McGill, 1917 | 1955 | 1954 |
| erlin, Irving I. | 1000 W. 7th St. | | OL 8-1809 | Jeff., 1935 | 1936 | 1938 |
| ishop, Sarah | 625 E. 10th Street | PH* | OL 4-3181 | Mich., 1932 | 1955 | 1955 |
| lase, William C. | 1009 Delaware Ave. | I* | OL 4-9039 | Hahn., 1947 | 1948 | 1954 |
| ohan, Edward M. | 1521 Delaware Ave. | I* (Diab.) | OL 4-3810 | Queens, 1931 | 1934 | *1935 |
| oines, George J. | 413 N. Broom St. | Polio. | OL 2-6559 | Jeff., 1929 | 1931 | *1932 |
| owdle, Frederick A. | 1400 N. Franklin | I | OL 2-0289 | Hahn., 1934 | 1935 | 1936 |
| rennan, Robert S. | 1207 Delaware Ave. | Pd* | OL 4-7712 | Jeff., 1949 | 1950 | *1955 |
| riggs, Ward W. | 1026 N. Jackson St. | I* | OL 4-8847 | Hopkins, 1936 | 1938 | 1946 |
| rooks, Clifton R. | 269 E. Main St., Newark | Pd* | EN 8-2594 | Wisc., 1946 | 1953 | *1953 |
| rown, Foster M. | 824 Lombard St. | ALR | OL 4-5763 | Howard, 1929 | 1930 | *1951 |
| ulger, Thomas J. | 1501B N. Broom St. | S* | OL 4-8816 | Columbia, 1936 | 1938 | 1947 |
| urch, Dana D. | 1105 Delaware Ave. | | OL 2-7541 | Temple, 1934 | 1936 | *1937 |
| urns, Ira (Hon.) | Ormand Beach, Fla. | Ret. | | Md., 1905 | 1912 | 1913 |
| utler, James W. | 2103 Washington St. | | OL 2-8928 | Penn., 1920 | 1921 | *1923 |
| yrne, William A. | 1311 Delaware Ave. | P* | OL 5-2724 | Hahn., 1943 | 1950 | *1951 |
| annon, Norman L. | 1208 Delaware Ave. | U* | OL 4-7007 | Penn., 1937 | 1939 | *1942 |
| arl, Harry A. | 116 Del. St., New Castle | | EA 8 3459 | Hahn., 1937 | 1938 | *1941 |
| arroll, Irvin N. | 1300 Main St., Stanton | I* | WY 4-2772 | Jeff., 1941 | 1942 | *1950 |
| asella, Joseph V. | Wilm. Gen. Hosp. | Pa* | OL 6-2551 | G. Wash., 1940 | 1948 | *1949 |
| asscells, S. Ward | 1205 Gilpin Ave. | Or* | OL 6-2516 | Va., 1939 | 1949 | *1949 |
| haramella, Italo | 1504 N. Broom St. | | OL 5-3123 | Va., 1940 | 1941 | *1946 |
| havin, Sidney | 812 Washington St. | | OL 2-2912 | Temple, 1925 | 1926 | 1927 |

| Name | Address | Specialty | Tel. | School | Licen. | Joine |
|---|---|---|---|---|---|---|
| Chipman, I. Lewis, Sr. (Hon.) | Medical Arts Bldg. | D* | OL 2-6614 | Med-Chi., 1905 | 1905 | 190 |
| Chipman, I. Lewis, Jr. | 914 Jefferson St. | I*(GE) | OL 2-5180 | Penn., 1943 | 1946 | *195 |
| Chrzanowski, John A. | 204 N. Broom St. | | OL 4-0647 | Hahn., 1941 | 1942 | *194 |
| Clagett, A. Henry, Jr. | 1618 N. Broom St. | C* | OL 6-7119 | Hahn., 1936 | 1937 | 193 |
| Colfer, Richard J. | Del. Hospital | Pa* | OL 4-5211 | Georget'n, 1942 | 1951 | *195 |
| Conrad, Marjorie E. | 519 Phila. Pike | | PO 4-4408 | Hahn., 1946 | 1947 | 194 |
| Cooper, Raymond G. | Nemours Bldg. | In* | OL 4-5121 | St. Louis, 1934 | 1949 | *194 |
| Corrin, Kenneth M. | 1307 N. Rodney St. | N* | OL 4-2226 | Jeff., 1926 | 1938 | *193 |
| Crutchley, Allan R. | 115 N. Broad, Middletown | | FR 8-9412 | Georget'n, 1930 | 1933 | *193 |
| Cutler, Norman L. | 1300 Harrison St. | O* | OL 5-3351 | Hopkins, 1932 | 1939 | *194 |
| D'Alonzo, C. Anthony | 1305 N. Rodney | IN*(I) | OL 5-3827 | Va., 1937 | 1938 | 193 |
| Davidson, Douglas T. | 7 Com'wealth Av., Claymont | | SY 8-2031 | Penn., 1913 | 1920 | 192 |
| Davis, Walter D. | Professional Bldg. | P* | OL 4-0883 | Chicago, 1943 | 1952 | *195 |
| Davolos, Joseph J. | 1301 Penna. Ave. | ALR | OL 2-1193 | Georget'n, 1935 | 1937 | *193 |
| DeCherney, H. George | Del. St. Hosp. | P* | OL 8-4366 | Temple, 1944 | 1952 | *195 |
| Dewees, Robert L. | 1501 Broom St. | I | OL 5-5503 | Harvard, 1943 | 1950 | *195 |
| DiCecco, Frank J. | 1300 Woodlawn Ave. | | OL 8-4542 | Jeff., 1943 | 1944 | *194 |
| Donoho, Christopher R. | 266 S. College Ave., Newark | A | EN 8-1611 | Temple, 1942 | 1943 | *194 |
| Dorph, Marvin H. | 909 Washington St. | I | OL 4-7559 | Temple, 1948 | 1949 | 195 |
| Dougherty, Charles J. | 1700 Bancroft Parkway | S* | OL 6-1191 | Jeff., 1938 | 1940 | 194 |
| Dougherty, Hugh R. | 1101 Spruce Ave., Oak Grove | | WY 4-2680 | Temple, 1936 | 1951 | *195 |
| Downes, John R., (Hon.) | 21 Elkton Rd., Newark | Ret. | EN 8-6590 | Md., 1904 | 1924 | 19 |
| Duenner, Robt. H. | 37 Old Oak Rd., Newark | Ret. | EN 8-8586 | G. Wash., 1910 | 1947 | 19 |
| Dukes, James B. | Delaware Hospital | R* | OL 4-5211 | Rochester, 1946 | 1952 | *19 |
| Durham, Davis G. | Professional Bldg. | O* | OL 8-7153 | Jeff., 1943 | 1944 | *19 |
| Durham, J. Richard, Jr. | 623 Delaware Ave. | I*(C) | OL 2-1215 | Jeff., 1936 | 1937 | *19 |
| Dworkin, Albert | 1104 N. Jackson St. | Ob* | OL 5-3500 | Temple, 1952 | 1953 | 19 |
| Edwards, Conley L. | 1100 Gilpin Ave. | S* | OL 5-7668 | M. C. Va., 1948 | 1956 | 19 |
| Elbert, Samuel G., Jr. | 928 French St. | | OL 8-7239 | McGill, 1929 | 1931 | *19 |
| Ellegood, Robt. E. (Hon.) | Medical Arts Bldg. | OALR* | OL 2-4414 | Jeff., 1906 | 1908 | 19 |
| Eppes, Williford | 711 Elkton Rd., Newark | | EN 8-7058 | Md., 1947 | 1956 | 19 |
| Eriksen, George N. | 1400 8th St. | Pd* | OL 4-7707 | Jeff., 1946 | 1947 | *19 |
| Eskew, Kenneth W. | 804 S. Chapel St., Newark | | EN 8-4762 | Indiana, 1952 | 1954 | 19 |
| Esterly, Katherine L. | 1415 Delaware Ave. | Pd* | OL 8-7556 | Temple, 1951 | 1954 | 19 |
| Fantazier, Elmer F. | 1100 N. Broom St. | Pd* | OL 6-4252 | Georget'n, 1944 | 1947 | *19 |
| Feltz, Thomas F. | 1908 Washington St. | | OL 4-8229 | Hahn., 1929 | 1930 | 19 |
| Fenimore, Wm. N. (Hon.) | 1701 Greenhill Ave. | Ret. | OL 5-3041 | Jeff., 1921 | 1922 | 19 |
| Flanders, James F. | 1105 Jefferson St. | I* | OL 6-2069 | Ga., 1942 | 1950 | *19 |
| Fleming, Allen J. | Nemours Bldg. | In* | OL 4-5121 | McGill, 1932 | 1948 | *19 |
| Flinn, Irvine M., Jr. | 501 Delaware Ave. | Or* | OL 6-1624 | Hopkins, 1925 | 1928 | *19 |
| Flinn, Lewis B. | 503 Delaware Ave. | I*(Metab) | OL 8-4356 | Hopkins, 1922 | 1922 | *19 |
| Forman, Mildred B. | 2812 Market St. | | OL 8-7453 | M. C. Va., 1934 | 1935 | 19 |
| Forrest, Geo. W. K. (Hon.) | 901 Jackson St. | | OL 8-9412 | Penn., 1897 | 1897 | 19 |
| Foulger, John H. | 6037 Du Pont Bldg. | In* | OL 4-5121 | Cincinnati, 1930 | 1950 | 19 |
| Frelick, Robert W. | 114 Murphy Rd., Deerhurst | I*(On) | OL 8-7014 | Yale, 1944 | 1948 | *19 |
| Freyhan, Fritz A. | Del. State Hosp. | P* | OL 8-4366 | Berlin, 1937 | 1951 | *19 |
| Furlong, John H., Jr. | Professional Bldg. | U* | OL 6-0897 | Jeff., 1943 | 1944 | *19 |
| Gallaher, Phyllis D. | Professional Bldg. | G* | OL 2-3532 | Woman's, 1928 | 1952 | 19 |
| Gallaher, William T. | 1103 Delaware Ave. | ObG* | OL 6-6684 | Penn., 1942 | 1952 | 19 |
| Garrison, Geo. H. H. | 1007 Park Place | ObG* | OL 6-8422 | Va., 1937 | 1946 | *19 |
| Gay, Douglas M. | Haskell Lab. | Pa* | EN 8-2572 | Harvard, 1924 | 1932 | *19 |
| Gehret, Andrew M. | 1007 Park Place | ObG* | OL 6-8422 | Jeff., 1929 | 1932 | 19 |
| Gehrmann, Geo. H. | Chadds Ford, Pa. | Ret. | MA 8-2251 | Long Is., 1913 | 1926 | *19 |
| Gelb, Albert | 1100 Gilpin Ave. | S* | OL 5-7786 | Jeff., 1948 | 1953 | 19 |
| Gelb, Jack | 1 Alvil Road | | WY 4-2880 | Jeff., 1948 | 1948 | *19 |
| Genthner, William M. | 1100 King St. | In* | OL 6-8111 | Long Is., 1921 | 1942 | 19 |
| Gilday, Frank J. | 1903 Delaware Ave. | A* | OL 5-4264 | Jeff., 1944 | 1945 | *19 |
| Giles, Junius A. | 1103 Del. Ave. | ObG* | OL 6-6684 | Penn., 1931 | 1933 | *19 |
| Gledhill, Emerson Y. | Memorial Hospital | S(On)* | OL 6-3351 | Columbia, 1937 | 1952 | *19 |
| Gliwa, Edward F. | 3000 Newport Gap Pike | PH* | WY 4-2429 | Jeff., 1946 | 1947 | *1 |
| Gluckman, Albert G. | 1101 Madison St. | | OL 2-4847 | Md., 1932 | 1933 | 1 |
| Goens, Walter W. | 503 E. 10th St. | | OL 5-2556 | Howard, 1926 | 1938 | *1 |
| Goleburn, Maurice | 2312 Market St. | | OL 8-4684 | Temple, 1943 | 1944 | *1 |
| Gordon, Gerald | Nemours Bldg. | IN*(P) | OL 4-5121 | Louisville, 1938 | 1945 | 1 |
| Gordy, Philip D. | 1007 Delaware Ave. | NS*(Diag) | OL 4-8835 | Mich., 1943 | 1949 | *1 |
| Graff, John J. | 1407 Woodlawn Ave. | An* | OL 6-1480 | Jeff., 1942 | 1948 | *1 |
| Gray, H. Wendell | 1211 Gilpin Ave. | I*(C) | OL 5-6601 | Hahn., 1925 | 1926 | 1 |
| Griffin, Joseph P. | DuPont Experimental Sta. | In* | OL 6-3361 | Va., 1938 | 1950 | 1 |
| Gross, Abram J. | 817 West St. | | OL 6-4534 | Jeff., 1917 | 1917 | *1 |
| Gross, Elmer R. | Medical Arts Bldg. | D* | OL 5-6869 | Mich., 1933 | 1935 | *1 |
| Gruver, Arthur B. | 1809 Washington St. | Ret. | OL 2-5057 | Med-Chi., 1898 | 1933 | 1 |
| Hainlen, E. Willis | Bissell Sanat. | T* | WY 8-2223 | McGill, 1924 | 1952 | 1 |
| Halabi, Nour E. | 1200 Delaware Ave. | S*(On) | OL 8-6030 | Beirut, 1947 | 1952 | 1 |
| Hall, William T. | 1210 Delaware Ave. | I*(Rheu) | OL 8-2660 | Temple, 1944 | 1954 | *1 |
| Handy, Margaret I. | 1415 Delaware Ave. | Pd* | OL 8-7556 | Hopkins, 1916 | 1918 | 1 |
| Hanel, John H. | 1 Alvil Rd | | WY 4-2880 | Penn., 1950 | 1953 | 1 |
| Harwitz, Morris | 314 N. Broom St. | | OL 8-9692 | Jeff., 1926 | 1928 | *1 |
| Hassler, Frank S. | Professional Bldg. | ObG* | OL 8-7379 | Md., 1943 | 1946 | *1 |
| Hayden, Richard C. | 1409 Van Buren St. | ObG* | OL 6-6118 | Md., 1944 | 1950 | *1 |
| Hayes, Lloyd S. | 301 S. Jackson St. | | OL 8-1368 | M. C. Va., 1932 | 1936 | *1 |
| Hazzard, William R. | 1003 Delaware Ave. | OALR* | OL 6-8867 | Hahn., 1936 | 1937 | *1 |
| Hearne, Calvin B. | 114 Murphy Rd., Deerhurst | Pd* | OL 6-0801 | Md., 1947 | 1951 | * |

| Name | Address | Specialty | Tel. | School | Licen. | Joined |
|---|---|---|---|---|---|---|
| eather, Arthur J. | Du Pont Convt. Hosp. | PMR | OL 8-6591 | Temple, 1940 | 1942 | *1942 |
| eckler, G. Barrett | 1406 N. VanBuren St. | I | OL 4-9511 | Jeff., 1948 | 1952 | 1955 |
| ershon, Leonard A. | 201 Eureka St., Rich. Pk. | | OL 2-1322 | Tufts, 1948 | 1950 | *1951 |
| llyard, Raymond W. | 1007 Delaware Ave. | NS* | OL 4-8835 | Penn., 1946 | 1953 | *1954 |
| ch, Harry L. | 106 S. Broad St., Middletown | | FR 8-2581 | Penn., 1949 | 1950 | 1954 |
| gshead, Thomas H. | Louviers Bldg. | In*(P) | EN 8-7111 | Harvard, 1937 | 1953 | 1953 |
| olloway, William J. | 503 Delaware Ave. | I* | OL 8-4356 | Md., 1948 | 1952 | *1955 |
| lzman, Mark B. (Hon.) | 822 Washington St. | | OL 2-4812 | Med-Chi., 1904 | 1913 | *1914 |
| man, Frederic F. | 2501 Washington St. | | OL 2-7744 | Hahn., 1935 | 1936 | 1940 |
| ward, John W. | Delaware Hosp. | Pa* | OL 4-5211 | Penn., 1936 | 1945 | *1945 |
| diburg, C. L. | 1007 Park Place | ObG* | OL 4-5814 | Wash., 1928 | 1930 | *1931 |
| ghes, Joseph F. | 1501B N. Broom St. | S* | OL 5-1537 | Jeff., 1935 | 1954 | *1954 |
| nt, Robert D. | 222 Waverly Rd., Fairfax | An* | OL 6-3351 | Syracuse, 1946 | 1952 | *1953 |
| ntington, Park W. | Delaware Hosp. | Pa* | OL 4-5211 | Jeff., 1949 | 1952 | *1955 |
| ynes, John F. | 1100 N. Jackson St. | (S)Ca* | OL 4-1865 | Yale, 1930 | 1935 | *1936 |
| ynes, Thomas V. | 1111 Brandywine Blvd. | | SY 8-4112 | Yale, 1934 | 1937 | 1941 |
| gram, Albert L., Jr. | 1403 N. Rodney St. | P* | OL 5-8238 | Md., 1942 | 1943 | *1949 |
| hnson, Catherine P. | Medical Arts Bldg. | Ob* | OL 2-8515 | Penn., 1929 | 1933 | 1935 |
| hnson, Edgar N. | Professional Bldg. | OALR | OL 2-7244 | Jeff., 1942 | 1943 | *1949 |
| hnson, Rand C. | 1007 Park Place | ObG* | OL 4-5814 | N'Western, 1948 | 1956 | *1956 |
| hnson, Wallace M. | 257 E. Main St., Newark | | EN 8-8563 | Mich., 1922 | 1923 | 1929 |
| nes, Frank A. | 1400 N. Franklin St. | S*(Thor) | OL 4-5083 | Jeff., 1937 | 1941 | *1948 |
| nes, Lawrence J. | 1010 Delaware Ave. | S* | OL 5-6714 | Penn., 1916 | 1916 | *1919 |
| aminsky, Aaron A. | 500 W. 19th St. | I | OL 4-1076 | Md., 1935 | 1953 | 1953 |
| nsak, Harry A. | 828 Washington St. | D | OL 2-2573 | Hahn., 1936 | 1937 | 1943 |
| arpinski, Charles M. | 1501B N. Broom St. | S* | OL 4-8816 | Yale, 1947 | 1951 | *1952 |
| atz, Charles J. | 2018 Gilpin Ave. | NP* | OL 4-0664 | Rush, 1936 | 1951 | 1951 |
| atzenstein, Lawrence | 501 Delaware Ave. | D* | OL 5-5071 | Md., 1928 | 1947 | *1947 |
| y, Jerome | 501 Delaware Ave. | P* | OL 6-7550 | Penn., 1943 | 1950 | 1950 |
| ppel, Gordon | Univ. of Del., Newark | | EN 8-8511 | Columbia, 1941 | 1953 | 1954 |
| rrigan, James W. | 10 Cathedral Ave., Claymont | | SY 8-4520 | Georget'n, 1932 | 1933 | *1935 |
| yser, Morton | 2000 Washington St. | ObG* | OL 2-1231 | Penn., 1944 | 1945 | *1952 |
| mble, Leroy R. | 800 Haines Ave., Bellefonte | | PO 4-2948 | Hahn., 1942 | 1943 | *1948 |
| ng, Allen D. | Medical Arts Bldg. | D* | OL 5-2935 | Penn., 1928 | 1932 | *1933 |
| ng, David J. | Medical Arts Bldg. | Or* | OL 4-6422 | Toronto, 1939 | 1944 | *1945 |
| ng, John F. W. | 521 W. 57th St., N.Y.C. | ObG*(On) | PL 7-2700 | Jeff., 1940 | 1947 | *1949 |
| ether, Paul C. | 3 E. 2nd St., New Castle | | EA 8-7183 | N.Y.M.C., 1950 | 1951 | *1952 |
| raemer, Wm. H., (Hon.) | duPont Bldg. | Res*(Ca.) | OL 5-5421 | Jeff., 1906 | 1908 | *1908 |
| ratka, Wm. H. | Medical Arts Bldg. | O* | OL 4-3196 | Temple, 1936 | 1953 | 1953 |
| rieger, Edward M. | 1501 N. Broom St. | I(C)* | OL 5-5503 | Ohio, 1936 | 1937 | *1938 |
| urland, Abram B. | 603 Newport Gap Pike | | WY 4-7408 | Hahn., 1932 | 1933 | 1934 |
| ird, Edmund G. | 1413 Delaware Ave. | S* | OL 2-2597 | Hopkins, 1931 | 1938 | *1939 |
| aMotte, W. Oscar (Hon.) | Professional Bldg. | Ret. | OL 8-7153 | Penn., 1907 | 1914 | 1914 |
| aMotte, William O., Jr. | Professional Bldg. | O* | OL 8-7153 | Penn., 1940 | 1942 | 1944 |
| ang, Leonard P. | 1009 Delaware Ave. | I* | OL 2-2286 | Jeff., 1939 | 1952 | *1952 |
| aRue, Raymond T. | 910 Jefferson St. | U* | OL 4-5811 | Temple, 1920 | 1921 | 1930 |
| attomus, Winfield W. | Delaware Hospital | R* | OL 4-5211 | Penn., 1925 | 1933 | *1934 |
| awrence, Charles T. | 1303 Pennsylvania Ave. | | OL 8-1864 | Jeff., 1934 | 1936 | 1937 |
| awson, James J. | Nemours Bldg. | In* | OL 4-5121 | Tufts., 1949 | 1955 | *1956 |
| e, Walter H. | 206 S. Broad St., Middletown | | FR 8-2131 | Penn., 1936 | 1937 | *1938 |
| enderman, E. H. (Hon.) | 28 Penna. Ave., Rehoboth | Ret. | Reh. 8522 | Penn., 1908 | 1912 | *1913 |
| essey, A. Gerald | 1213 Gilpin Ave. | OALR* | OL 6-3252 | Jeff., 1940 | 1941 | *1947 |
| evitsky, David A. | 1207 Delaware Ave. | Pd* | OL 4-7712 | Jeff., 1951 | 1952 | 1954 |
| evy, Charles | 621 Delaware Ave. | I* | OL 5-2255 | Jeff., 1928 | 1930 | *1931 |
| ewis, Dorsey W. (Hon.) | 217 N. Broad, Middletown | Ret. | FR 8-2722 | Md., 1896 | 1899 | 1905 |
| otz, A. King | Medical Arts Bldg. | | OL 2-3125 | Hahn., 1917 | 1917 | 1925 |
| umley, Walter S. | 1202 New Road, Elsmere | | WY 8-8548 | Temple, 1913 | 1918 | *1922 |
| ynch, Raymond A. | 619 Delaware Ave. | S* | OL 2-7013 | Temple, 1920 | 1924 | *1925 |
| yons, James C., Jr. | 3716 Philadelphia Pike | | SY 8-5283 | Hahn., 1943 | 1947 | *1948 |
| acKelcan, Douglas W. | Professional Bldg. | | OL 6-6679 | Jeff., 1945 | 1948 | *1949 |
| aguire, Vincent deP. | 814 N. Broom St. | | OL 5-9138 | Penn., 1943 | 1944 | 1948 |
| ahru, Mario M. | 1109 N. Hilton Rd. | I* | OL 6-1248 | Torino, 1936 | 1954 | 1954 |
| ankin, Louisa Claflin | 11 Carole Rd., Chest. Hill | PH | EN 8-4380 | Temple, 1947 | 1949 | 1950 |
| antell, Harriet B. | 24 Minquil Drive, Newark | Pd* | EN 8-4586 | N'Western, 1949 | 1954 | 1956 |
| aroney, Charles E. | 1205 Delaware Ave. | U* | OL 2-1822 | Hahn., 1928 | 1929 | 1930 |
| aroney, John W. | 1207 Delaware Ave. | Pd* | OL 4-7712 | Yale, 1930 | 1938 | 1939 |
| artin, G. William, Jr. | 1504 Marsh Rd. | | OL 2-0943 | Md., 1950 | 1955 | 1955 |
| aske. Leslie I. | 2822 Washington St. | | OL 4-5980 | Hahn., 1934 | 1936 | 1940 |
| ayerberg, Emil R. | Medical Arts Bldg. | OALR* | OL 2-2211 | Jeff., 1916 | 1917 | *1919 |
| cCarthy, James R. | 1100 Madison St. | | OL 2-6144 | Hahn., 1948 | 1949 | 1954 |
| cElfatrick, George C. | 1024 W. 8th St. | S* | OL 2-4249 | Md., 1946 | 1947 | *1954 |
| cGee, Donald H. | 1100 N. Broom St. | Pd* | OL 4-4042 | Jeff., 1942 | 1948 | *1956 |
| cGee, Lemuel C. | Del. Trust Bldg. | In* | OL 8-7211 | Rush, 1929 | 1942 | *1941 |
| cGuire, H. Thomas | 212 Del. St., New Castle | In | EA 8-3452 | Georget'n, 1932 | 1933 | *1934 |
| cKusick, Marjorie J. | 1302 Delaware Ave. | Pd* | OL 6-9729 | Harvard, 1949 | 1953 | 1955 |
| ekanik, Edwin A. | 901 N. Franklin Street | S* | OL 5-7187 | Hahn., 1946 | 1953 | *1954 |
| encher, Arthur A. | 132 W. Main St., Newark | | EN 8-1620 | McGill, 1929 | 1931 | 1933 |
| essick, Joseph M. | 1400 N. Franklin St. | I | OL 2-3126 | Penn., 1928 | 1933 | *1934 |
| etzger, James T. | Medical Arts Bldg. | S* (Plast.) | OL 6-6434 | Duke, 1945 | 1953 | *1953 |
| ilewski, Eugene F. | 320 Pen'will Dr. Wilm. Man. | Pd* | OL 5-8136 | Georget'n, 1952 | 1955 | 1956 |
| iller, Edgar R. | Katamandu, Nepal | I*(C) | | Md., 1925 | 1927 | 1929 |
| iller, Elizabeth B. | Katamandu, Nepal | | | Wom (Pa.), '27 | 1928 | 1931 |

| Name | Address | Specialty | Tel. | School | Licen. | Joined |
|---|---|---|---|---|---|---|
| Miller, Herman S. | 609 Washington St. | U* | OL 8-4942 | Md., 1911 | 1911 | 1914 |
| Miller, S. Thomas | Wilm. Gen. Hosp. | R* | OL 6-2551 | Penn., 1929 | 1947 | *195 |
| Moore, Raymond B. | 1106 Woodlawn Ave. | | OL 5-6831 | Penn., 1923 | 1924 | *194 |
| Moore, Walter W. | Med. Arts Bldg. | S* | OL 6-7017 | Jeff., 1947 | 1948 | *195 |
| Morris, Allston J. | 1105 Jefferson St. | I* | OL 6-2069 | NYU, 1944 | 1949 | *1951 |
| Munson, C. Leith | 1501 Broom St. | S* | OL 5-5503 | Jeff., 1930 | 1931 | *193 |
| Murray, Roger W. | 613 W. 10th St. | S(In) | OL 2-8093 | Jeff., 1925 | 1928 | *192 |
| Nah, Victor C. | 301 N. Van Buren St. | U | OL 8-9933 | Md., 1913 | 1914 | 191 |
| Niles, Jerome D. (Hon.) | 11 E. Main St., Middletown | Ob* | FR 8-9351 | Med-Chi., 1909 | 1910 | 191 |
| Nutter, E. Hughes | 106 Haines St., Newark | | EN 8-3121 | Hahn., 1935 | 1936 | *194 |
| O'Brien, Frank T. | Professional Bldg. | S*(Thor) | OL 5-5297 | Jeff., 1942 | 1953 | 195 |
| O'Donnell, Edward T. | 1321 Gilpin Ave. | Pd*(A) | OL 4-0767 | Yale, 1934 | 1937 | *193 |
| Olivere, Peter J. | 1003 Delaware Ave. | R* | OL 5-2703 | Georget'n, 1937 | 1938 | *194 |
| Olmedo, Livio | 1007 Delaware Ave. | NS* | OL 4-8835 | Mich., 1949 | 1952 | *195 |
| Panariello, Domenic A. | 1328 W. 7th St. | | OL 4-1606 | Marquette, 1949 | 1950 | 195 |
| Parvis, Edward S. | 1103 Penna. Ave. | | OL 8-9957 | Hahn., 1929 | 1930 | *193 |
| Pawley, Sigmund B. | 820 Maryland Ave. | | OL 2-5633 | Jeff., 1917 | 1917 | *192 |
| Pearson, G. Burton, (Hon.) | 2427 Delaware Ave. | Ret. | OL 5-8991 | Albany, 1897 | 1901 | 190 |
| Pennington, Alfred W. | Louviers Bldg. | In* | EN 8-7111 | M. C. Va., 1929 | 1948 | 194 |
| Pennington, Martin B. | 1003 Park Place | | OL 2-1422 | Hahn., 1935 | 1933 | *194 |
| Pennock, Thomas H. | 1101 Delaware Ave. | ObG* | OL 6-8024 | Hahn., 1941 | 1942 | *195 |
| Phillips, Lawrence D. | R. D. 4, Marshallton | Ret. | OL 8-4366 | Md., 1919 | 1927 | *192 |
| Pierson, Frank F. (Hon.) | 900 N. Van Buren | | OL 8-4033 | Hahn., 1891 | 1891 | 192 |
| Pierson, John C. | 1400 N. Franklin St. | S* | OL 4-5083 | Hahn., 1923 | 1924 | *192 |
| Pierson, W. Morris | 1009 Delaware Ave. | OALR* | OL 2-2724 | Hahn., 1921 | 1921 | 192 |
| Platt, David | 4th and Franklin Sts. | | OL 4-8024 | Penn., 1940 | 1941 | 194 |
| Platt, Ethel F. | 4th and Franklin Sts. | | OL 4-8024 | Wom. (Pa.), '41 | 1942 | 194 |
| Poole, Gerald O. | Professional Bldg. | OALR*(Plas) | OL 5-7174 | Hahn., 1931 | 1932 | *193 |
| Porter, Winder L. | 225 N. duPont St. | PH* | OL 5-9089 | Penn., 1937 | 1939 | *195 |
| Potocki, Peter P. | 1329 Linden Street | | OL 4-0404 | Jeff., 1952 | 1953 | *195 |
| Preston, Daniel J. | 600 Delaware Ave. | S* | OL 2-5642 | Temple, 1934 | 1940 | *194 |
| Preston, Willard F. | 2222 W. 17th St. | ObG* | OL 4-1349 | Georget'n, 1925 | 1926 | *192 |
| Price, Richard H. | 1315 West 9th St. | NP* | OL 5-8747 | Boston, 1917 | 1928 | 192 |
| Rafal, Howard S. | 901 N. Franklin St. | S* | OL 5-7187 | M. C. Va., 1943 | 1947 | *194 |
| Rankin, Stewart L. | Nemours Building | In* | OL 4-5121 | Jeff., 1930 | 1947 | *195 |
| Reardon, William T. | 207 West 29th St. | OALR* (A) | OL 2-0179 | Md., 1934 | 1936 | *193 |
| Reed, Howard L. | Del. Trust Bldg. | In* (A) | OL 8-7211 | Duke, 1936 | 1947 | *194 |
| Reinhardt, David J. III | 1600 N. Broom St. | I*(C) | OL 8-3309 | Jeff., 1951 | 1956 | *195 |
| Rennie, Sylvester W. | 1201 Delaware Ave. | G* | OL 2-8851 | Penn., 1930 | 1934 | *193 |
| Repman, Harry J., Jr. | 1300 Delaware Ave. | U* | OL 2-5605 | Jeff., 1941 | 1948 | *195 |
| Resnick, Elton S. | 2118 Washington St. | | OL 4-3140 | Md., 1937 | 1939 | *194 |
| Rich, David | 1005 S. Dupont, Wilm. Manor | | OL 2-1222 | Wayne, 1939 | 1941 | *194 |
| Richards, Charles F. | 1003 Delaware Ave. | S* | OL 5-8761 | Jeff., 1942 | 1942 | *194 |
| Richey, Margaret C. | 35 W. 5th St., New Castle | | EA 8-4233 | Woman's, 1923 | 1951 | 19 |
| Rogers, Robert A. | 1701 Penna. Ave. | | OL 2-0988 | Temple, 1943 | 1946 | 19 |
| Rogg, Sanford G. | Nemours Bldg. | P* | OL 4-5121 | Lausanne, 1942 | 1952 | *19 |
| Rose, Stuart W. | 1501 N. Broom St. | S* | OL 5-5503 | Ind., 1942 | 1952 | *19 |
| Rosenblum, Herman | 1100 Gilpin Ave. | Pd.* | OL 4-1627 | Tenn., 1944 | 1953 | *19 |
| Rovitti, Francis P. | 501 Concord Ave. | | OL 4-2079 | Georget'n, 1938 | 1939 | 19 |
| Russell, Karl S. | RD 3, Crestfield | An* | SY 8-4604 | Hahn., 1937 | 1949 | *19 |
| Russo, Joseph R. | 1902 West 4th St. | | OL 4-0220 | Jeff., 1924 | 1925 | 19 |
| Ryon, William G. | 301 W. 39th St. | | PO 4-2445 | Temple, 1939 | 1940 | *19 |
| Sallee, Jack C. | Professional Bldg. | A* | OL 8-5537 | Vanderbilt, 1942 | 1953 | *19 |
| Samuel, Meredith I. (Hon.) | 1714 Washington St. | Ret. | OL 4-3290 | Md., 1900 | 1900 | 19 |
| Sanders, R. Douglas | Delaware Hospital | An* | OL 4-5211 | Louisville, '28 | 1947 | *19 |
| Savage, Gerald J. | Delaware Hospital | An* | OL 4-5211 | McGill, 1945 | 1950 | *19 |
| Seeger, Allen H. | 1409 Van Buren St. | ObG* | OL 2-7579 | Buffalo, 1942 | 1948 | 19 |
| Seeherman, Robert | 903 Franklin St. | | OL 5-1955 | Hahn., 1949 | 1950 | *19 |
| Serino, Giraldo S. | 1403 W. 9th St. | S* | OL 2-4390 | Jeff., 1932 | 1941 | *19 |
| Shands, Alfred R., Jr. | Alfred I. duPont Inst. | Or* | OL 5-6386 | Va., 1922 | 1937 | 19 |
| Shapiro, Jacob A. | North American Bldg. | OALR* | OL 6-8623 | Jeff., 1926 | 1927 | 19 |
| Shaw, Paul A. | 1500 Delaware Ave. | R* | OL 8-4025 | Hahn., 1928 | 1929 | *19 |
| Shelanski, Morris V. | 34 & Chestnut Sts., Phila. | In* | Ev 6-6430 | McGill, 1947 | 1949 | 19 |
| Shellenberger, Wm. D. | 1105 Delaware Ave. | | OL 2-7541 | Temple, 1951 | 1952 | 19 |
| Sherman, Leo F. | 4th & Franklin Sts. | | OL 4-8024 | M. C. Va., 1950 | 1954 | 19 |
| Silverman, William C. | Academy Apts., Newark | | EN 8-1644 | Buffalo, 1937 | 1944 | 19 |
| Sisson, William H. | 1104 N. Adams St. | P* | OL 4-2414 | Vt., 1945 | 1954 | 19 |
| Skura, Frank S. | 311 N. Broom St. | | OL 8-9772 | Georget'n, 1935 | 1936 | *19 |
| Slovin, Isadore | 1104 Jackson St. | ObG* | OL 5-3500 | Jeff., 1939 | 1940 | *19 |
| Smith, Alexander | 1904 Washington St. | | OL 4-6633 | Penn., 1926 | 1928 | *19 |
| Smith, Caleb H. | Professional Bldg. | Pr* | OL 6-7468 | Penn., 1933 | 1953 | *19 |
| Smith, Glen T. | Louviers Bldg. | In* | EN 8-7111 | Chi., 1937 | 1954 | 19 |
| Sortman, Harold P. | 2718 Washington St. | | OL 6-8956 | Jeff., 1936 | 1937 | *19 |
| Soule, Rublee C. | 325 E. Main St., Newark | | EN 8-3355 | Harvard, 1949 | 1955 | 19 |
| Spackman, James G. | 901 N. Franklin Street | S* | OL 6-3351 | Hahn., 1912 | 1912 | 19 |
| Springer, Harold L. (Hon.) | 1013 Washington St. | S | OL 5-6032 | Penn., 1902 | 1904 | 19 |
| Squires, Millard F. | 507 Mary'd Ave., Rich. Pk. | | WY 4-7726 | Md., 1936 | 1937 | *19 |
| Stat, Sidney | 1818 Delaware Ave. | | OL 4-6006 | Penn., 1928 | 1929 | 19 |
| Stayton, Howard N., Jr. | 92 W. Park Place, Newark | In* | EN 8-8178 | Md., 1940 | 1941 | 19 |
| Stern, Oscar N. | 1103 Delaware Ave. | ObG* | OL 6-6684 | Penn., 1932 | 1933 | *19 |

| Name | Address | Specialty | Tel. | School | Licen. | Joined |
|---|---|---|---|---|---|---|
| Stevens-Young, Verna | 1509 Gilpin Ave. | G* | OL 4-3162 | Manitoba, 1925 | 1928 | 1932 |
| Stradley, Shermer H. | Nemours Bldg. | In* | OL 4-5121 | Hahn., 1934 | 1935 | *1936 |
| Strahan, Charles, Jr. | Professional Bldg. | P* | OL 5-7232 | Md., 1945 | 1952 | *1954 |
| Strange, Theodore B. | 1205 Gilpin Ave. | Or* | OL 6-2516 | Va., 1940 | 1949 | *1949 |
| Stroud, Henry H. | 1017 Park Place | Pd* | OL 5-2234 | Jeff., 1939 | 1940 | *1947 |
| Szatkowski, Eugene J. | 732 S. Broom St. | | OL 4-5507 | Georget'n, 1935 | 1933 | *1937 |
| Szypkowski, Stanley S. | 101 N. Rodney St. | | OL 2-2643 | Penn., 1917 | 1917 | 1954 |
| Tarrant, Harold A. | 1315 W. 9th St. | | OL 5-8747 | P&S(Bost.), '31 | 1932 | *1935 |
| Tarumianz, M. A. (Hon.) | Del. State Hosp. | NP* | OL 8-4366 | Berlin, 1910 | 1925 | *1925 |
| Taylor, Harry | 1833 Lancaster Ave. | | OL 2-5202 | Temple, 1937 | 1938 | 1939 |
| Taylor, Richard N. | Professional Bldg. | S*(Vasc.) | OL 4-9367 | Va., 1951 | 1956 | *1956 |
| Thomas, Roger B. | 201 Eureka St., Rich. Pk. | | OL 2-1322 | Jeff., 1940 | 1941 | *1942 |
| Tikellis, I. J. | 1801 Marsh Rd. | I(In) | OL 6-1438 | Harvard, 1948 | 1955 | *1955 |
| Tucker, Leonard | 1009 Park Place | I | OL 8-2600 | Long Is., 1944 | 1950 | 1951 |
| Vallett, Brice S. | Medical Arts Bldg. | U* | OL 2-7912 | Va., 1918 | 1918 | *1920 |
| Vandervort, Robert S. | Wilm. General Hosp. | An* | OL 6-2551 | Pitt., 1946 | 1954 | *1954 |
| Vandervort, William J. | 1501B N. Broom St. | | OL 5-1537 | Yale, 1953 | 1954 | 1957 |
| Vincent, Bayard R. | 1202 Delaware Ave. | O* | OL 6-3319 | Temple, 1938 | 1939 | *1949 |
| Vitiello, Anthony F. | 617 West St. | | OL 2-4705 | Loyola, 1943 | 1944 | *1945 |
| Wagner, Charles E. | Medical Arts Bldg. | Pd* | OL 2-7621 | Hopkins, 1918 | 1922 | *1924 |
| Wagner, Charles W. | 201 Bacon Ave., Leedom Est. | | OL 2-0739 | Va., 1950 | 1951 | *1953 |
| Walker, Charles, Jr. | 1300 N. Franklin St. | I* | OL 2-8889 | Hahn., 1945 | 1946 | 1952 |
| Walker, Earl E., Jr. | 804 S. Chapel St., Newark | | EN 8-4762 | Emory, 1952 | 1954 | 1956 |
| Walker, George L. | 3301 Capitol Trail | Ret. | | Hahn., 1928 | 1929 | 1941 |
| Walters, Dene T. | Naaman & Faulk Rds. | | SY 8-2087 | Penn., 1953 | 1954 | 1956 |
| Warren, Robert O. Y. | 1403 Delaware Ave. | Pd* | OL 8-5021 | Hopkins, 1929 | 1932 | 1933 |
| Washburn, Victor D. (Hon.) | 822 Washington St. | Hosp.Adm. | OL 5-3926 | Atlantic, 1905 | 1905 | 1924 |
| Watson, Thomas L. | Louviers Bldg. | In* | EN 8-7111 | Va., 1930 | 1948 | *1956 |
| Weaver, Owens S. | 1103 Delaware Ave. | ObG* | OL 6-6684 | Hahn., 1946 | 1947 | *1955 |
| Wells, F. Barton | 65 Landers Lane, Swanwyck | | OL 6-8813 | Hahn., 1943 | 1944 | 1954 |
| Wendel, Henri F. | 6 Halcyon Dr., New Castle | | OL 4-7729 | Penn., 1953 | 1954 | *1955 |
| Whitney, Leslie W. | 1003 Delaware Avenue | S* | OL 6-6118 | Temple, 1944 | 1950 | *1951 |
| Wooden, Allen C. | 204 School H. La., Bellefonte | | SY 8-6949 | Md., 1944 | 1947 | *1951 |
| Wright, William A. | DuPont Exp. Station | In* | OL 6-3361 | Albany, 1949 | 1955 | 1955 |
| Wuertz, Robert L. | 1117 N. Franklin St. | I* | OL 8-5437 | Temple, 1948 | 1953 | *1954 |
| Young, Nathaniel | Emily Bissell Sanatorium | T* | WY 8-2223 | Glascow, 1932 | 1956 | 1956 |

## 10—ASSOCIATE MEMBERS

### Members of County Society — Not Members of State Society

| | | | | | | |
|---|---|---|---|---|---|---|
| Bjornson, Sveinbjorn S. | Memorial Hosp. | L* | OL 6-3351 | Manitoba, 1946 | 1956 | 1957 |
| Bonnet, John C. | Nemours Bldg. | In* | OL 4-5121 | Hopkins, 1943 | | 1956 |
| Cates, Haynes B. | Professional Bldg. | Or* | OL 4-9367 | Tenn., 1942 | 1949 | 1955 |
| Gasper, Major Wilson | Veterans Hosp. | VA* | WY 4-2511 | Mich., 1927 | | *1947 |
| McHale, Donald G. | Veterans Hosp. | VA*(S) | WY 4-2511 | Jeff., 1935 | | 1957 |
| Munday, Perry L. | 249 E. Main St., Newark | OALR(Splas.) | EN 8-3096 | Albany, 1938 | 1955 | 1956 |
| Reed, Roy E. | Winston-Salem, N. C. | VA*(P) | | Buff., 1932 | | 1950 |
| Sachs, Kurt | Veterans Hosp. | VA*(GE) | WY 4-2511 | Vienna, 1935 | 1954 | 1956 |
| Schell, James E. | Veterans Hosp. | VA*(S) | WY 4-2511 | Penn., 1927 | | *1948 |
| Sluzar, Oleh W. | 1101 Madison St. | I*(Pulm.) | OL 5-2982 | Marburg, 1949 | 1956 | 1956 |

## 27—KENT COUNTY

| Name | Address | Specialty | Tel. | School | Licen. | Joined |
|---|---|---|---|---|---|---|
| Baker, John B. | 206 N. Walnut St., Milford | Pd* | 4821 | Penn., 1930 | 1932 | *1933 |
| Bishoff, Rhoslyn J. | 114 S. State St., Dover | | 4328 | Temple, 1945 | 1950 | *1950 |
| Burton, Benjamin F., Jr. | 637 S. Governors Ave., Dover | Pd* | 3715 | Penn., 1930 | 1934 | *1935 |
| Chipman, Wm. T. | 27 Clark St., Harrington | | 8374 | Md., 1912 | 1913 | *1914 |
| Comegys, Richard W. | Clayton | | Smy. 4051 | Md., 1933 | 1933 | *1934 |
| Dennis, Edward S. | 100 S. Queen St., Dover | | 3643 | Howard, 1951 | 1953 | *1953 |
| Everett, Franklin R. | 20 S. State St., Dover | I(C) | 5577 | Md., 1925 | 1937 | *1937 |
| Fox, J. Robert | 637 S. Governors Ave., Dover | OALR* | 4852 | Jeff., 1943 | 1951 | *1952 |
| Hays, James F. | Int. Latex Corp., Dover | In(C)* | 4761 | Jeff., 1923 | 1954 | 1954 |
| Krieger, John A. | 223 N. State St., Dover | ObG* | 5002 | N.Y.U., 1951 | 1955 | 1957 |
| Laggner, Harold J. | 117 W. Commerce St., Smyrna | | 8101 | Jeff., 1945 | 1948 | *1950 |
| Layton, Robert R., Jr. | 229 S. State St., Dover | S* | 4301 | Jeff., 1932 | 1935 | *1946 |
| Lazzeri, John J. | 104 Mt. Vernon St., Smyrna | | 8561 | Temple, 1944 | 1947 | *1947 |
| MacCollum, I. J. | Wyoming | S | Bfd. 4631 | Jeff., 1914 | 1914 | 1914 |
| Marshall, William, Jr. (Hon.) | 112 Front St., Milford | D | 4122 | Penn., 1905 | 1905 | *1905 |
| McDaniel, Joseph S. | 637 S. Governors Ave., Dover | | 5838 | Jeff., 1918 | 1918 | *191 |
| McDaniel, J. Stites | 637 S. Governors Ave., Dover | | 5838 | Jeff., 1939 | 1940 | *194 |
| McNinch, Eugene R. | 126 Walker Rd., Dover | R | 4363 | Md., 1936 | 1952 | *195 |
| McNinch, James R. | 154 S. Bradford St., Dover | S* | 7432 | Md., 1945 | 1954 | *195 |
| Mercer, E. Harold, Jr. | 113 S. State St., Dover | | 2990 | Hahn., 1933 | 1935 | *193 |
| Neese, Harry G., Jr. | Broad & RR Aves., Wyoming | | Bfd. 7450 | Temple, 1944 | 1946 | *194 |
| Pollak, Otakar J. | 9 Kings Highway, Dover | Pa* | 3987 | Masaryk, 1930 | 1945 | *194 |
| Prickett, Clarence J. | Mt. Vernon St., Smyrna | Adm* | 5071 | Med.-Chi., 1916 | 1916 | *191 |
| Pritchard, William C., Jr. | N. Main St., Smyrna | | 6141 | Temple, 1938 | 1940 | *194 |
| Smith, Hewitt W. | 103 Fleming St., Harrington | | 8032 | G. Wash., 1932 | 1933 | *193 |
| Spong, George R. | 24 The Green, Dover | | 4046 | Jeff., 1946 | 1950 | *195 |
| Wilson, Henry V'P. | L'kman St. & Park Dr., Dover | S* | 2623 | Hopkins, 1923 | 1927 | *192 |

## 54—SUSSEX COUNTY

| Name | Address | Specialty | Tel. | School | Licen. | Joined |
|---|---|---|---|---|---|---|
| Annand, John W. | 203 S. E. Front St., Milford | | 8070 | Temple, 1946 | 1947 | *1952 |
| Barnes, Bruce | 328 High St., Seaford | | 7037 | Md., 1921 | 1926 | 1926 |
| Beckert, Rudolph H. | Cedar & Laws Sts., Bridgeville | | 7125 | Hahn., 1943 | 1949 | 1949 |
| Beebe, James, Sr. (Hon.) | P. O. Box 18, Lewes | S(Ret) | 2211 | Jeff., 1906 | 1906 | *1906 |
| Beebe, James, Jr. | Beebe Clinic, Lewes | S* | 2211 | Jeff., 1944 | 1945 | *1948 |
| Bice, Donald L. | Seaford | In | 3520 | Hahn., 1939 | 1940 | 1940 |
| Campbell, William R. | W'land & Atlantic Aves., Ocean View | | Dick. 7203 | Penn., 1951 | 1953 | 1954 |
| Cooper, William B., Jr. | 111 Cannon St., Seaford | S* | 3-6911 | Md., 1947 | 1953 | *1954 |
| Daisey, W. Orville | 30 Park Ave., Rehoboth | OALR | 6951 | Md. MC., 1911 | 1920 | 1946 |
| Dickey, Robert L. | 103 Clayton Ave., Laurel | O* | 3858 | Temple, 1945 | 1948 | *1950 |
| Dobson, Leslie M. | Milford Mem. Hosp., Milford | R* | 4561 | Jeff., 1937 | 1938 | *1940 |
| Edmonston, M. Russell | 13 S. Bedford St., Georget'n. | O* | 7322 | Georget'n, 1932 | 1955 | *1956 |
| Elliott, J. Roscoe | West St., Laurel | S | 7545 | Hopkins, 1909 | 1912 | 1912 |
| Elliott, Joseph A. | Oak Lane Drive, Laurel | | 3193 | Cornell, 1948 | 1949 | 1954 |
| Ellis, W. Pierce | 106 Clayton Ave., Laurel | | 3773 | Jeff., 1945 | 1946 | *1948 |
| Fitchett, Laurence L. | 204 S. Walnut St., Milford | | 4318 | Wisc., 1931 | 1933 | *1933 |
| ox, J. Leland | Pennsylvania Ave., Seaford | | 3204 | Jeff., 1936 | 1938 | *1938 |
| Gray, Catherine C. | 203 Del. Ave., Bridgeville | Ob | 3061 | Wom. (Phil.) '25 | 1928 | 1928 |
| Geyer, Harold W. | 312 S. Walnut St., Milford | P* | 8005 | Yale-Hunan, '31 | 1951 | 1952 |
| Heck, A. Leon | Sussex Co. Health Unit, Georgetown | PH | 7347 | Penn., 1919 | 1922 | 1922 |
| Homan, James B. | 637 S. Governors Ave., Dover | D* | 7990 | Hahn., 1937 | 1940 | *1945 |
| Hudson, Floyd I. | State House, Dover | PH | 2801 | Jeff., 1932 | 1933 | 1933 |
| Hudson, Virgil A. | Main St., Millsboro | | 2511 | Hahn., 1932 | 1933 | *1933 |
| ames, Oliver A. | 6 Causey Ave., Milford | S* | 4029 | Hopkins, 1933 | 1938 | *1938 |
| Klingel, Robert L. | Moore Bldg., Rehoboth | | 2721 | St. Louis, 1943 | 1947 | *1947 |
| Lewis, Robert F. | Old Meadow Rd., Seaford | An | 7109 | Roch., 1930 | 1955 | *1955 |
| Lynch, John W. | Cannon & Poplar Sts., Seaford | | 3345 | Long Is., 1935 | 1936 | *1936 |
| Lynch, S. Howard (Hon.) | Delmar | | | Md., 1906 | 1911 | 1911 |
| Manning, Harrison M. (Ret.) | 423 Penn. Ave., Seaford | | 4060 | Jeff., 1912 | 1912 | *1913 |
| Marine, David (Hon.) | Rehoboth | | 2041 | Hopkins, 1905 | 1945 | 1945 |
| Marshall, Samuel M. D. | 9 Causey Ave., Milford | OALR* | 4897 | Penn., 1909 | 1909 | *1909 |
| Marshall, William V. (Ret.) | Rehoboth | | 8471 | Jeff., 1913 | 1913 | 1913 |
| Marvil, James E. | 401 S. Central Ave., Laurel | OALR* | 3641 | Jeff., 1930 | 1931 | *1931 |
| Metzler, Gottfried, Jr. | Main St., Bridgeville | | 5461 | Jeff., 1928 | 1930 | 1930 |
| Mick, Felix | 202 S. Walnut St., Milford | | 5922 | Penn., 1943 | 1944 | *1954 |
| Moyer, Charles M. | Central Ave. & 6th St., Laurel | I* | 3610 | Temple, 1936 | 1938 | *1938 |
| Noble, C. Greylock | Pennwell Ave., Greenwood | | 4565 | Penn., 1910 | 1948 | 1950 |
| Pierce, Carl G., Jr. | 15 Rehoboth Ave., Rehoboth | | 2191 | Jeff., 1950 | 1951 | *1952 |
| Portz, Warner P. | 17 N. E. Front St., Milford | An | 4903 | Georgetown, 1947 | | 1955 |
| Rawlings, John C. | 104 High St., Seaford | Pd | 7248 | Md., 1946 | 1950 | 1953 |
| Riggin, Howard S. | 10 Conwell St., Seaford | | 3227 | N.Y.M.C., 1916 | 1939 | 1939 |
| Sills, David N., Jr. | 11 S. E. Front St., Milford | S* | 4053 | Md., 1946 | 1954 | *1955 |
| Smoot, Aubrey C., Jr. | R.D. 3, Georgetown | | 2020 | Md., 1952 | 1953 | 1954 |
| Stambaugh, Ervin L. | 821 Savannah Rd., Lewes | S(U) | 5921 | Jeff., 1927 | 1929 | *1929 |
| Tobin, Thomas J. | N. Union St., Milton | | 8582 | Jeff., 1944 | 1944 | 1947 |
| Tormet, Arthur | Savannah Rd., Lewes | I(C) | 2211 | Tartu, 1940 | 1953 | *1954 |
| Trickett, Paul C. | Savannah Rd., Lewes | | 2211 | Long Is., 1949 | 1953 | 1954 |
| Van Valkenburgh, Glenn M. | Front & Pine Sts., Georgetown | | 2734 | Okla., 1931 | 1933 | *1933 |
| Vileisis, Casimir | 418 N. W. Front St., Milford | Pd | 8223 | VDU, Lith., 1940 | 1952 | *1954 |
| Waples, Joseph B., Jr. (Hon) | Market St., Georgetown | | 2114 | Va., 1910 | 1910 | *1910 |
| White, John P., III | 111 Cannon St., Seaford | | 3-6911 | Md., 1947 | 1955 | *1956 |
| Wildberger, Albert J. | R.D. 3, Georgetown | | 2020 | Md., 1952 | 1953 | 1954 |
| Williams, Arnold H. | West & 7th Sts., Laurel | Pd* | 7539 | Jeff., 1930 | 1937 | *1938 |
| Wood, George V. | Main St., Millsboro | | 3011 | M.C. Va., 1915 | 1925 | *1925 |

### 2—ASSOCIATE MEMBERS

Members of County Society — Not Members of State Society

| | | | | | | |
|---|---|---|---|---|---|---|
| Maresch, Alois E. | Lewes, Savannah Rd. | | 2211 | Munich, 1949 | | 1955 |
| Ware, Lulo | Lewes, Savannah Rd. | | 2211 | Marburg, 1949 | | 1955 |

# 1776 MEDICAL SOCIETY OF DELAWARE — 1957

INCORPORATED 1789

## OFFICERS

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PRESIDENT-ELECT, John B. Baker, Milford
VICE-PRESIDENT, O. N. Stern, Wilmington
SECRETARY, Norman L. Cannon, Wilmington
TREASURER, Charles Levy, Wilmington
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AMERICAN MEDICAL ASSOCIATION (1957)—DELEGATE, H. T. McGuire, New Castle — ALTERNATE, Leslie M. Dobson, Milford
REPRESENTATIVE TO DELAWARE ACADEMY OF MEDICINE, V. D. Washburn, Wilmington

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J. R. Elliott, Laurel
J. F. Flanders, Wilmington

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G. B. Heckler, Wilmington
L. L. Fitchett, Milford

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N. L. Cannon, Wilmington

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J. S. McDaniel, Sr., Dover
James Beebe, Jr., Lewes

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E. G. Laird, Wilmington
O. N. Stern, Wilmington
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L. L. Fitchett, Milford
A. H. Williams, Laurel

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H. J. Laggner, Smyrna
J. W. Lynch, Seaford

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W. W. Briggs, Wilmington
F. R. Everett, Dover
J. W. Annand, Georgetown
L. L. Fox, Seaford

#### DIABETES
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Charles Levy, Wilmington
D. H. Aitkin, Wilmington
R. L. Dewees, Wilmington
J. J. Lazzeri, Smyrna
T. J. Tobin, Milton

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M. A. Tarumianz, Farnhurst
V. D. Washburn, Wilmington
H. W. Smith, Harrington
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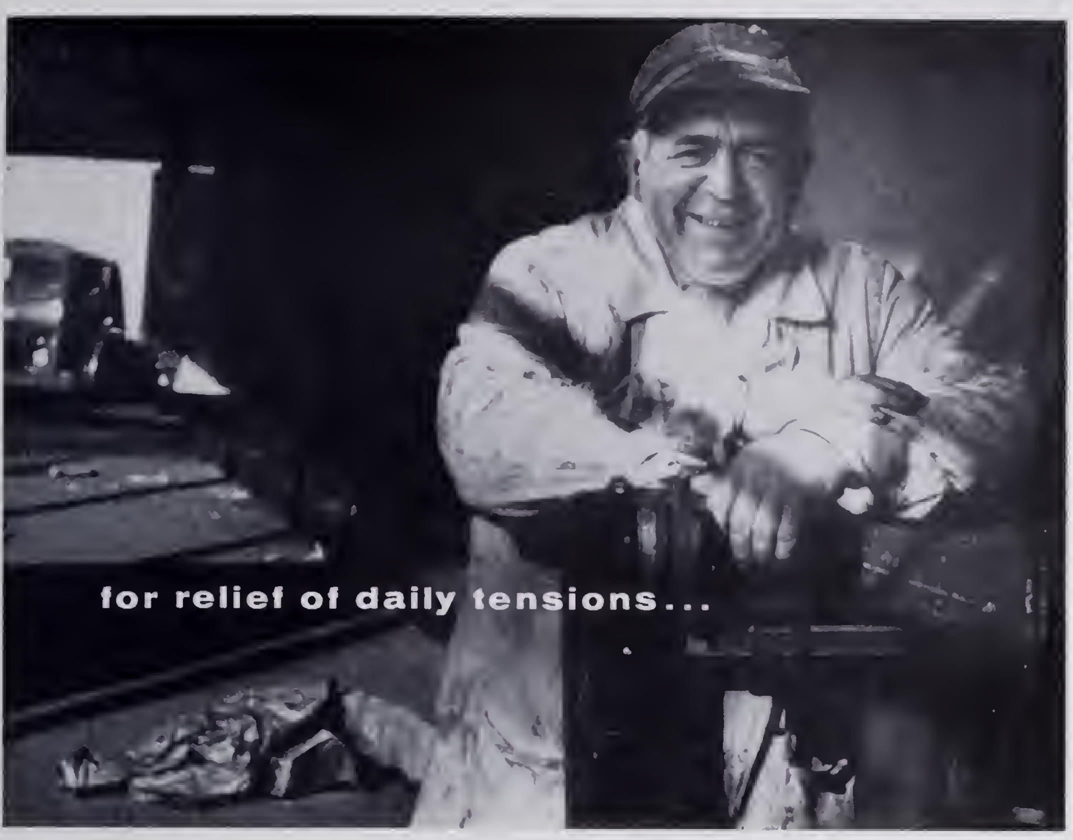

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*Ferguson, J. T.: J. Am. Geriatrics Soc. *4*:1080, 1956.

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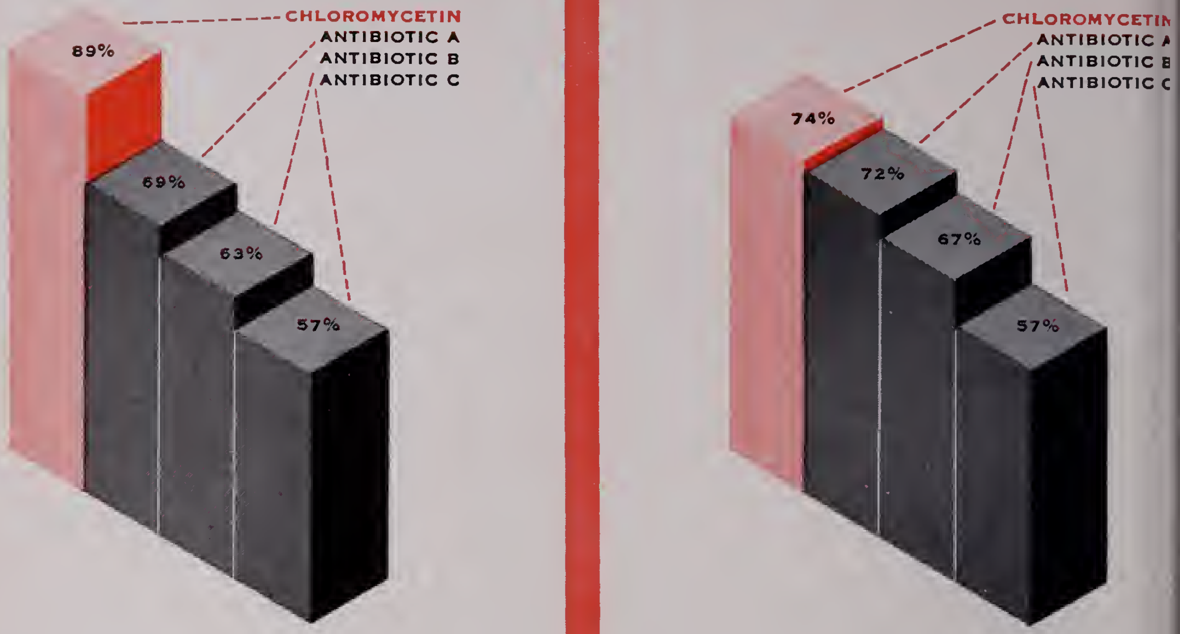

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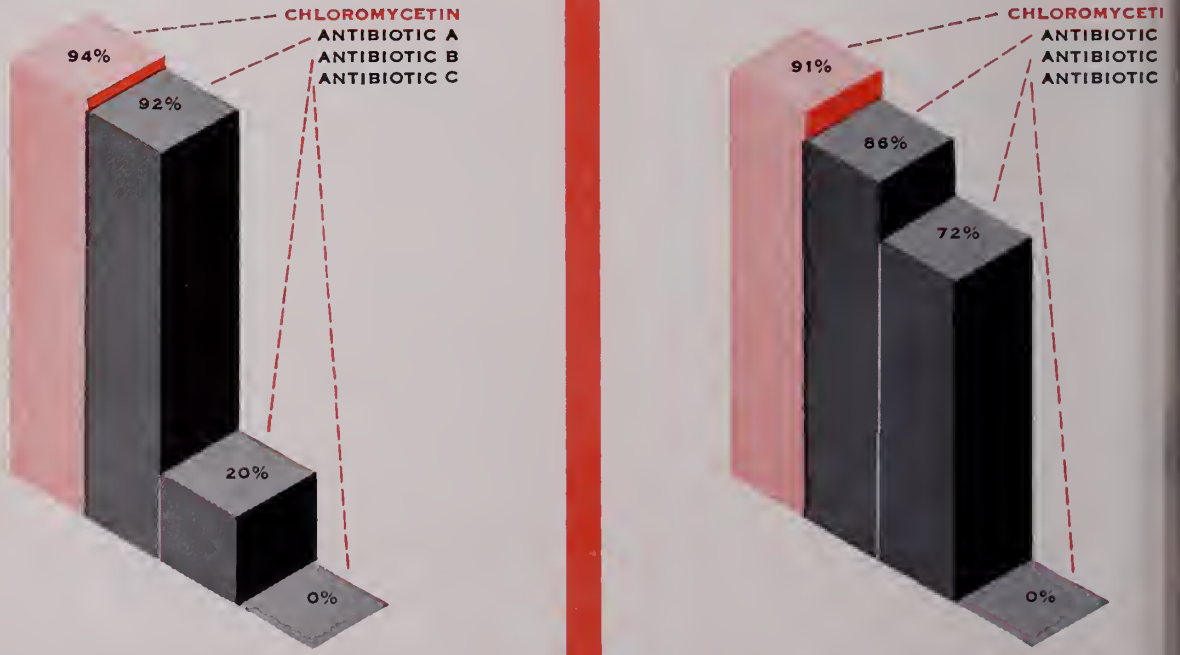

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*References* (1) Altemeier, W. A.; Culbertson, W. R.; Sherman, R.; Cole, W.; Elstun, W., & Fultz, C. T.: *J.A.M.A.* 157:305 (Jan. 22) 1955. (2) Austrian, R.: *New York J. Med.* 55:2475 (Sept. 1) 1955. (3) Murphy, F. D., & Waisbren, B. A., *in* Murphy, F. D.: Medical Emergencies: Diagnosis and Treatment, ed. 5, Philadelphia, F. A. Davis Company, 1955, p. 557. (4) Weil, A. J., & Stempel, B.: *Antibiotic Med.* 1:319, 1955. (5) Jones, C. P.; Carter, B.; Thomas, W. L., & Creadick, R. N.: *Obst. & Gynec.* 5:365, 1955. (6) Kass, E. H.: *Am. J. Med.* 18:764, 1955. (7) Tebrock, H. E., & Young, W. N.: *New York J. Med.* 55:1159 (Apr. 15) 1955.

raph is adapted
Altemeier, Cul-
n, Sherman, Cole,
, & Fultz.[1]

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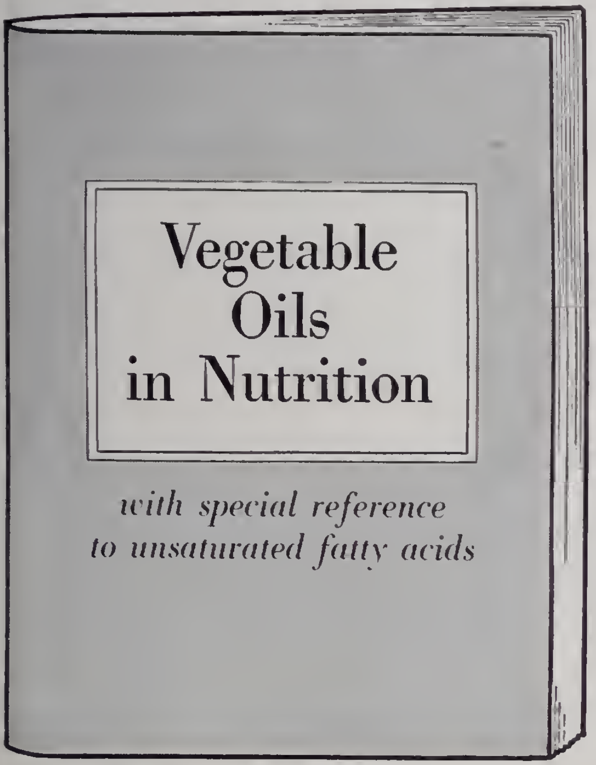
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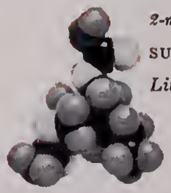

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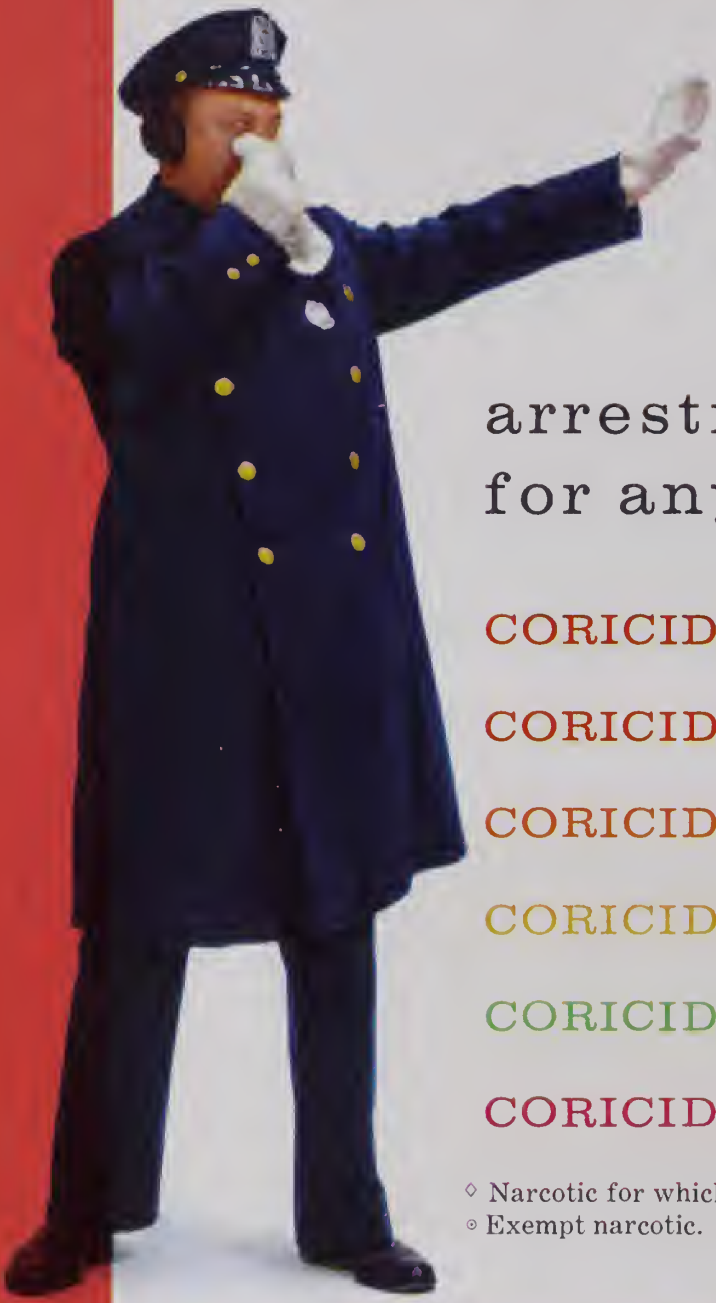

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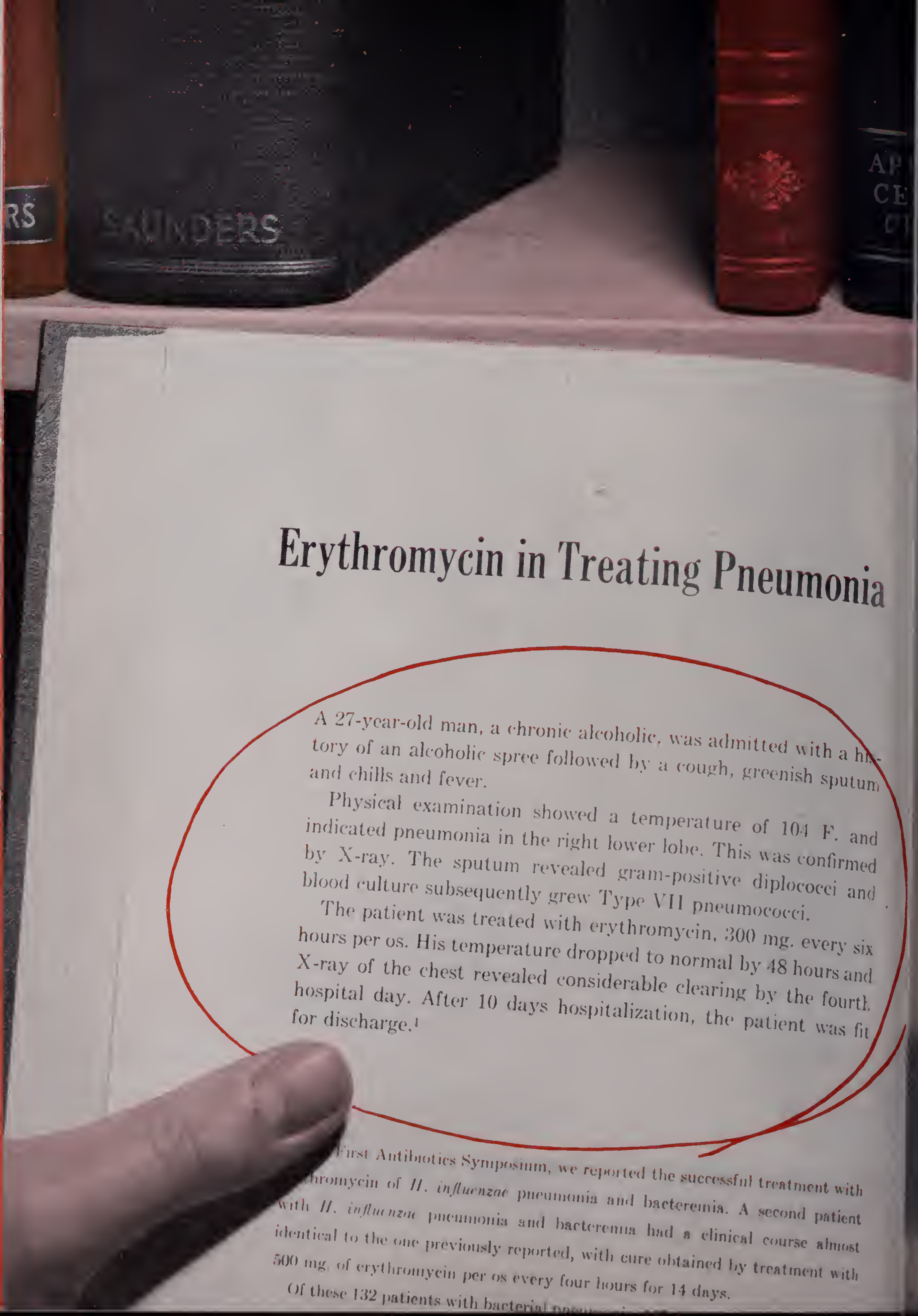

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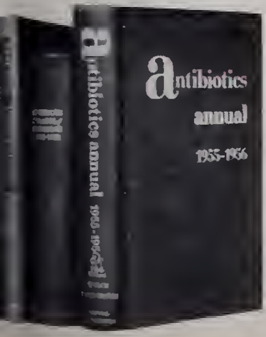

1. Romansky, M.J., et al., Antibiotics Annual 1955-1956, p. 48,
2. Waddington, W. S., Maple, F. C., and Kirby, W. M. M., A.M.A. Archives of Internal Medicine, 1954, p. 556.

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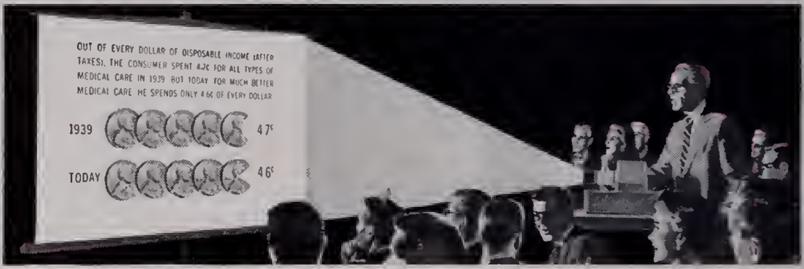
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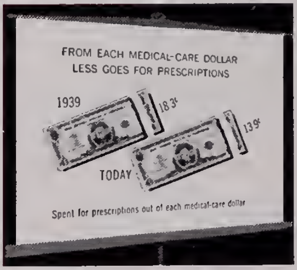

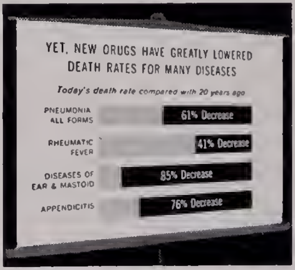

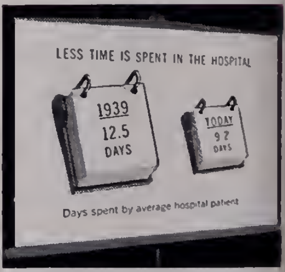

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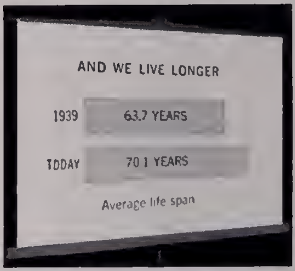

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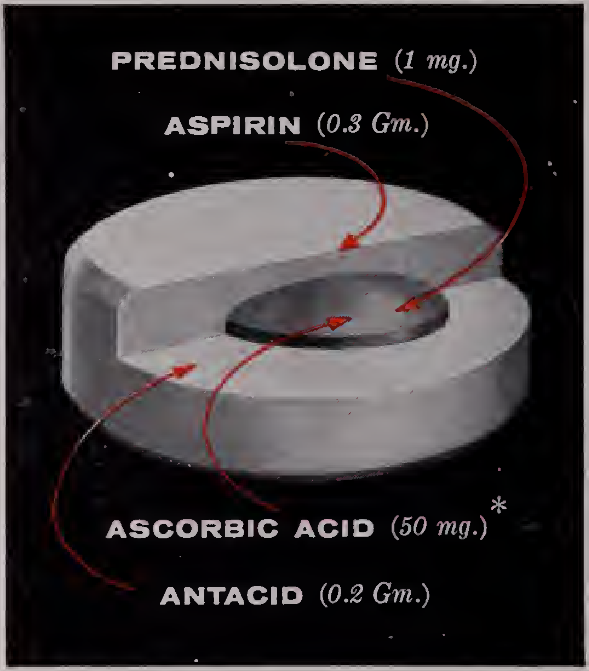
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1. Levin, S. J.: Pediat. Clin. North America, 1:975, Nov., 1954.

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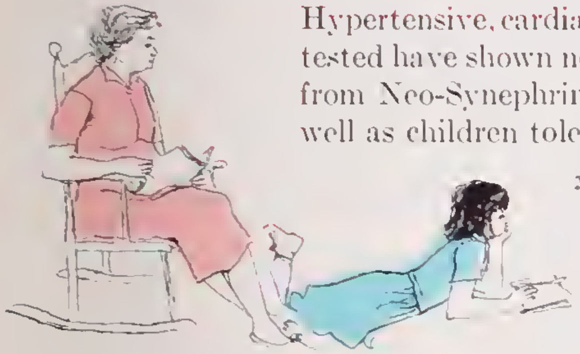

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[2] Van Alyea, O. E.; and Donnelly, Allen: *Arch. Otolaryng.*, 49:234, Feb., 1949.

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1. Carter, C. H., and Maley, M. C.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 51.

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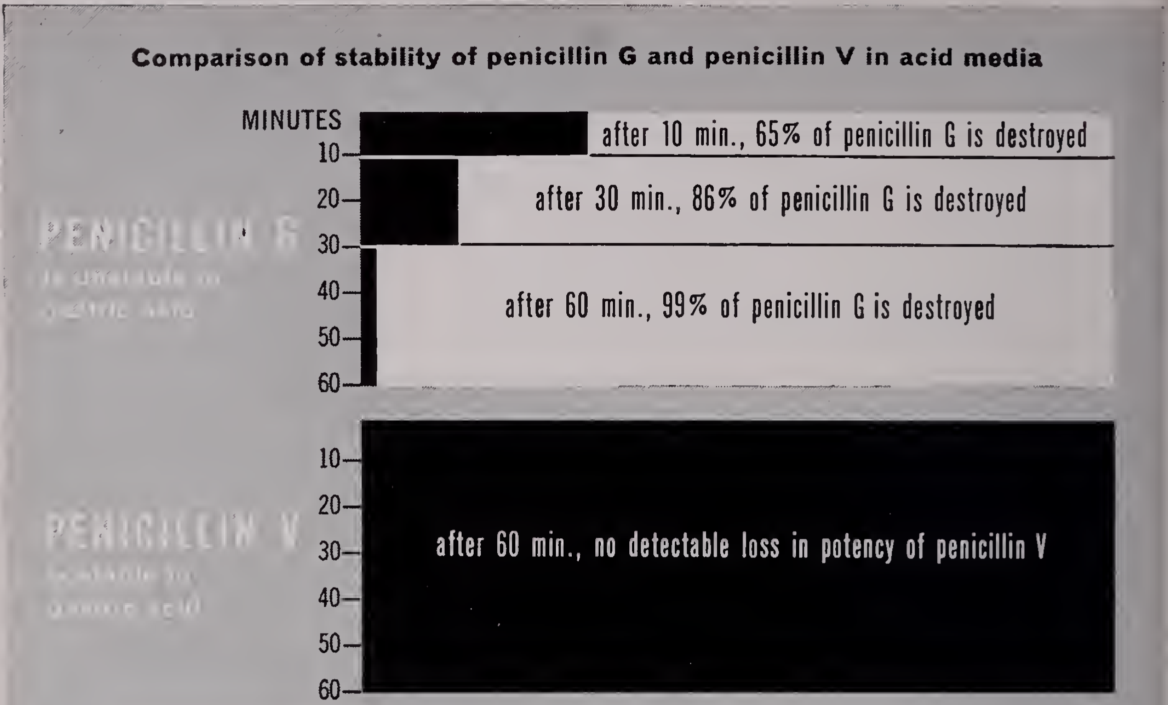

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# PARASACRAL PROSTATECTOMY

## A Case Report

Glauco M. Maresca, M.D.* and Brice S. Vallett, M.D.**

In prostatic surgery the better urological concept is to teach and utilize the well established approaches to the gland. For this reason we recently explored an old field, but new to us; namely, parasacral prostatectomy. To our knowledge, this is the first case to be reported in English medical literature.

Occasionally, one encounters a case in which he has but one choice of approach. For example, a patient with a large abdominal and scrotal hernia recently presented himself for relief of prostatism. The perineal route was mandatory. Had he also had ankylosis of the hip joint, parasacral prostatectomy would have been the only choice. In another instance, a man with psoriatic lesions covering the chest and abdomen was operated upon by way of the parasacral route.

### Case Report

A white man, age 78, was admitted to the hospital with acute urinary retention. He complained of abdominal pain and had been unable to void for the past 24 hours. There was a history of urgency, frequency, dysuria and hematuria of one month's duration. Past history was negative.

Physical examination revealed a pale, thin, normally developed man in fair general condition. The abdomen was distended with a large, round mass extending from the pubis to two fingers above the umbilicus, corresponding to a dilated bladder. Peristalsis was audible. Rectal examination revealed a large, irregular prostate, grade 3 enlargement with some stony-hard induration in the right lateral lobe. Neurological findings were normal. Admitting diagnosis: acute urinary rentention due to prostatic hypertrophy, or possible carcinoma.

A #18 Foley catheter was passed into the bladder with ease and approximately 2,000 cc. of clear urine were drained slowly. The catheter was left in place and the patient was given a complete medical and urological examination. He had normal RBC and WBC, BUN of 31 mgm% and the acid phosphatase was 0.7 (Shinowara). An intravenous excretory urogram revealed bilaterally functioning kidneys, bilateralureterectasis but no hydronephrosis. Irregularity of the bladder outline suggested extrinsic pressure from an enlarged prostate gland. Slight scoliosis of the lumbar spine with some deossification was noted.

A cystoscopic examination was performed under local anesthesia. A trabeculated and sacculated bladder wall was found. The vesical neck and the prostatic urethra was completely obstructed by enlarged lateral lobes. There was no evidence of malignant growth. A parasacral prostatectomy was performed nine days later. This operation has been known in the European literature for a number of years. Boeminghaus, Übelhö, Fabre[1], and Thiermann[2] have reported cases and described the technique in detail. In 1954 Thiermann[3] and Darget[4] reported 138 cases with no operative mortality or morbidity.

In performing this operation we followed the technique described by Fabre for total prostatectomy, because we felt this would assure us better exposure. For the second part of the operation below the osseous plane we followed the technique described by Thiermann. The following description

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*Resident, Department of Urology; **Director, Department of Urology, The Delaware Hospital, Wilmington.

and sketches describe our first experience step by step.

The patient under spinal anesthesia was placed in genu-pectoral position having had a #24 Foley catheter previously inserted into the bladder. A skin incision was made longitudinally in the midline from the sacrum downward, deviating laterally into the left gluteal region approximately 3 cm. from the anal sphincter. With curved scissors, the subcutaneous tissue was dissected from the underlying sacrum and coccyx (Fig. 1). The inferior lateral angles of the sacrum and the sacro-coccygeal joint, the posterior surface, lateral borders, and apex of the coccyx were exposed.

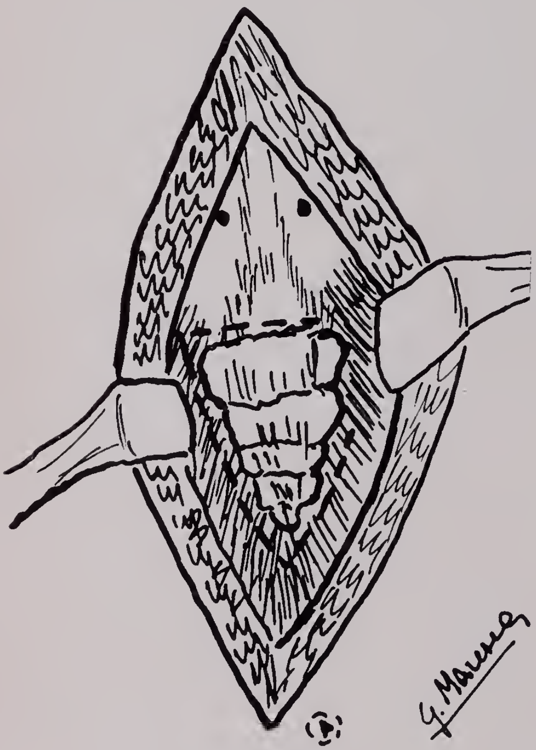

FIGURE 1
Incision. Note the healing by first intention.

All attachments were severed as close as possible to the periosteum (following the line as shown in Fig. 1). The upper right border of the coccyx was not dissected. With a chisel the base of the coccyx was detached from the sacral attachment (following the line as shown in Fig. 1), including the distal part of the sacrum. By this dissection the coccyx was free to be reflected as a flap on the right side, still attached at the right upper border to the muscular ligamentous structures (Fig. 2). The rectum, covered by thin areolar tissue, was exposed. It deviated toward the right side and the plane of cleavage was easily found between the rectum and the prostate gland under

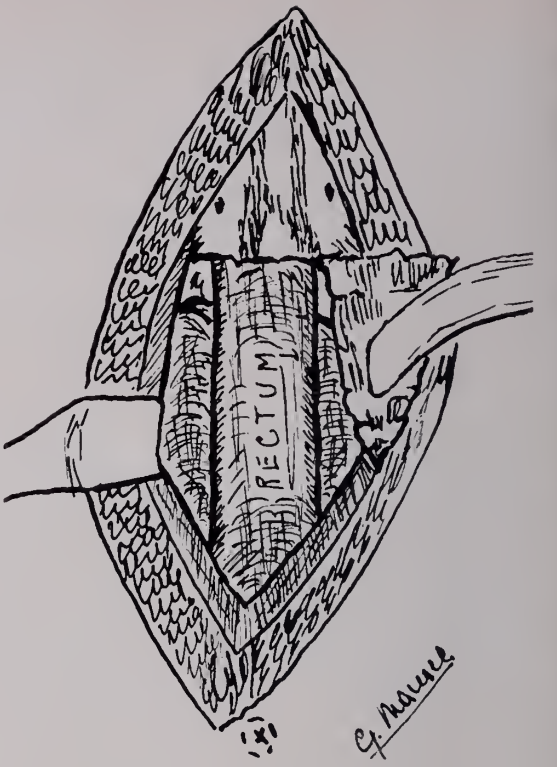

FIGURE 2

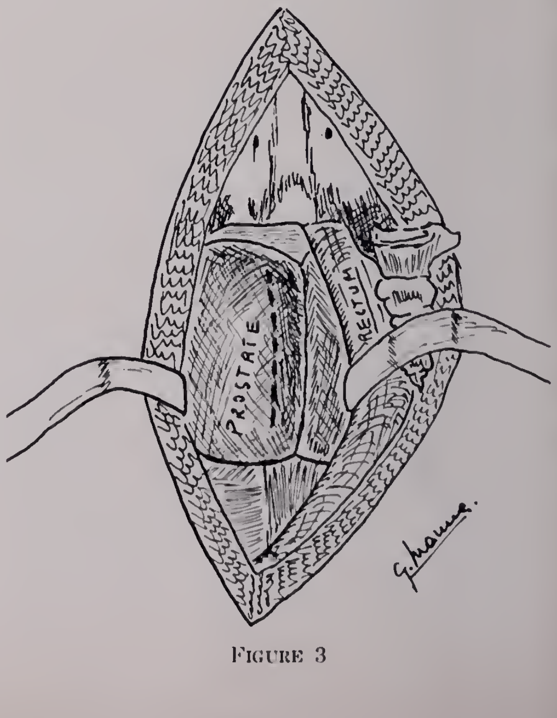

FIGURE 3

direct view. With a small Deaver retractor the rectum was retracted laterally, away from the prostate gland and an incision of about 3 cm. was made vertically in the capsule overlying the left lobe near the midline (Fig. 3). A plane of cleavage was found between the capsule and the prostatic tissue and with the index finger the left lateral lobe was enucleated. The inlying catheter was identified and laterally to it the right lateral lobe was enucleated.

Hot sponges were placed in the prostatic fossa for hemostasis. After their removal a few bleeding points were clamped and tied around the vesical neck and at the margin of the capsular incision. The prostatic capsule was closed in two layers. The first layer consisted of interrupted #00 chromic suture over the catheter in order to obliterate the capsular fossa. The second layer of continuous sutures was applied to the original capsular incision. A small Penrose drain was placed in the right ischiorectal fossa and brought up out of the inferior end of the incision. The Deaver retractor was removed and the rectum allowed to fall into its normal position. The coccyx was replaced in its original position and the severed edges of the musculo-tendinous insertions were coaptated to the periosteum by a few interrupted wire sutures of #32 steel wire. A few interrupted sutures of plain catgut for the subcutaneous tissue were placed, and the skin was closed using a continuous vertical mattress black silk suture. Very little bleeding was observed throughout the procedure. No blood transfusion was administered. Pink colored urine was draining from the Foley catheter, and the patient left the operating room in good condition.

The patient had an uneventful postoperative recovery. The Penrose drain was removed on the second day and the urine was clear on the third day. On the fourth day the patient was able to sit in a wheel chair, complaining only of some soreness at the operative site. The catheter was removed on the seventh day and the skin sutures removed on the eighth day. At this time the patient was walking and sitting without any complaints. The patient was discharged at the end of ten days, fully continent and voiding clear urine normally. The pathological report of the specimen was adenocarcinoma, and estrogen was ordered.

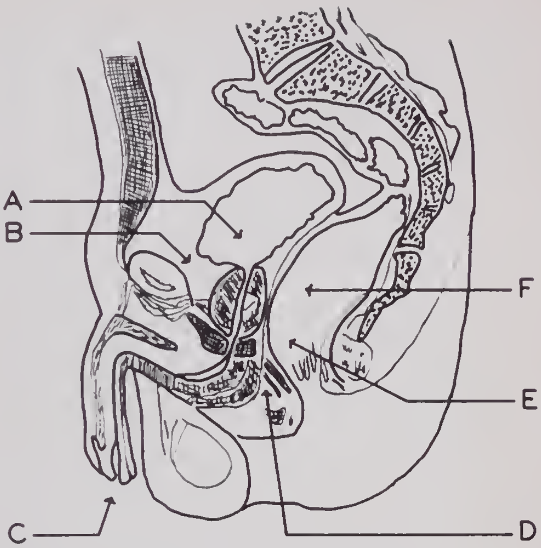

Figure 4—Routes used in performing prostatectomy:
A—suprapubic. B—retropubic.
C—transurethral. D—perineal.
E—ischiorectal. F—parasacral.

Figure 4 shows several approaches for which an operation has been devised: suprapubic, retropubic, transurethral, perineal, ischiorectal and parasacral prostatectomy. The latter presents, in our opinion, the following advantages:

1. It provides good exposure, especially for the radical operation of prostatectomy.
2. The integrity of both perineum and abdominal wall is preserved.
3. The wound heals kindly, usually by first intention.
4. It permits reconstruction of the urethra posteriorly in an open field without dissecting the space of Retzius and without fearing an osteitis pubis.

## Discussion

Aversion may be felt by some in working through a bony structure to approach the prostate. However, where formerly there was some hesitation to the removal of a rib or ribs in renal surgery, today this maneuver is accepted as commonplace. Some orthopedic surgeons have suggested total removal of the coccyx but we feel that it should be sewn back in place, particularly to give attachment to the external rectal sphincter.

## ADDENDUM

Since this paper was written nine additional parasacral operations (4 simple prostatectomies, 3 radical prostatectomies, 1 simple prostatectomy and repair of recto-urethral fistula following transurethral resection, and 1 biopsy of the prostate) have been performed in our department. No mortality or morbidity was observed in any of the 10 cases. A complete evaluation of this series will be the object of a report at a later date.

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# NOVOBIOCIN, A CLINICAL AND LABORATORY STUDY

by

W. J. HOLLOWAY, M.D.* and E. G. SCOTT, M.T.**

Novobiocin is a new antibiotic derived from *Streptomyces spheroides* (Cathomycin-Merck) or *Streptomyces niveus* (Albamycin-Upjohn). Previous reports[1,2,3] in medical literature describe the efficacy of this antibiotic against some gram-positive organisms (e. g., staphylococcus, pneumococcus, and streptococcus); and a few gram-negative strains (notably *Proteus sp.*). Studies[4,5] done *in vivo* and *in vitro* suggest the use of this new agent in the treatment of infections due to staphylococci, particularly those strains resistant to other antibiotics. The value of novobiocin in the treatment of proteus infections has been less well documented.

Novobiocin is well tolerated by mouth with a surprisingly low incidence of gastro-intestinal side effects.[2,3] This, perhaps, is due to its inability to alter the normal intestinal flora. Oral administration is reported to result in relatively high blood levels,[1] consistently above the minimal inhibitory concentration required for novobiocin sensitive organisms. This new antibiotic is not without undesirable side effects, dermatitis being the most common untoward reaction so far reported.[2,6]

The present report consists of a clinical study of novobiocin*** in 28 patients with a variety of infections. In addition, novobiocin was tested *in vitro* against 65 strains of various gram-positive and gram-negative organisms. Twenty-five of the 28 patients were selected for treatment from the medical, pediatric, and surgical services of the Delaware Hospital. A few of these were treated as out-patients. The remaining

TABLE I

INFECTIONS OF RESPIRATORY TRACT TREATED WITH NOVOBIOCIN

| Case | Age | Diagnosis | Organism and Source | Total Dosage | Response and Comment |
|---|---|---|---|---|---|
| 1 | 46 | lobar pneumonia | alpha-hem. strep. sputum | 15 gms. 10 days | Good-afebrile 48 hours, two lobes involved |
| 2 | 39 | lobar pneumonia | none | 10 gms. 7 days | Good-afebrile 48 hours, increased bilirubin and thymol turbidity |
| 3 | 52 | lobar pneumonia | gm. -pos. dip. smear, culture neg., sputum | 13 gms. 8 days | Good-afebrile 5 days, two lobes involved |
| 4 | 60 | lobar pneumonia | pneumococcus blood and sputum | 15.5 gms. 10 days | Good-afebrile 3 days, x-ray slow to clear |
| 5 | 26 | lobar pneumonia | gm. pos. dip. smear culture neg. sputum | 6.5 gms. 4 days | Good-afebrile 3 days, |
| 6 | 49 | lobar pneumonia | pneumococcus | 16 gms. 8 days | Good-afebrile 5 days, rash 8th day, eosinophilia |
| 7 | 19 | tracheitis (tracheotomy) | Proteus mirabilis sputum | 24 gms. 11 days | Good P. mirabilis in urine not cleared |
| 8 | 25 | tonsillitis | beta-hem. strep. throat | 6 gms. 6 days | Good-increased bilirubin |
| 9 | 32 | tonsillitis | none | 7.5 gms. 5 days | Good |
| 10 | 7 | tonsillitis | pneumococcus | 3.75 gms. 8 days | Good-heterophile 1:224 no rise |
| 11 | 3 | otitis media | alpha-hem. strep. ear | 3.0 gms. 8 days | Poor-some initial response, penicillin added |

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*Assistant in Medicine, Delaware Hospital.

**Bacteriologist, Delaware Hospital.

***The novobiocin used in this study was generously supplied as Cathomycin by Merck and Co.

three cases (#26, #27 and #28) were treated by Dr. Katherine Esterly at the Alfred I. du Pont Institute. Complete blood counts were obtained before, during, and after therapy from all patients. From 16 of the 28 patients liver function studies were obtained during and after therapy. Appropriate cultures were secured from all patients included in this study. In a representative number of cases serum novobiocin levels and/or serum Schlicter levels were performed.

The novobiocin was administered by mouth only to all patients in this study. The dose varied from 0.25 gm. to 4.0 gm. daily; the usual adult dose being 1.0 to 2.0 gm. per day. The average pediatric dose was 0.25 to 0.5 gm. per day. The duration of treatment was 7 to 10 days in most cases. A summary of cases treated and the results are given in charts I, II, III and IV.

### RESPIRATORY INFECTIONS

Six cases of lobar pneumonia were included in this study. A pneumococcus was isolated by culture in 2 cases and organisms resembling pneumococci were seen in the stained smear of the sputum of 2 additional cases. The etiological agent remains in doubt in the other 2 cases although the clinical picture was typical of lobar pneumonia. A good clinical response was obtained in all 6 cases. Case #4 showed extension of the pneumonic consolidation by X-ray on the seventh day of treatment but there was no clinical relapse. Later X-rays showed clearing. In this small series of cases novobiocin appeared comparable to other antibiotics used in the treatment of lobar pneumonia.

Three cases of tonsillitis responded rapidly to novobiocin. One of these (case #9) had been treated previously with a variety of antibiotics without response. Unfortunately, we were unable to obtain a culture from the tonsils. Case #7, a neurosurgical patient with severe head injuries, developed tracheitis secondary to tracheotomy. Cultures of *Proteus mirabilis* were made repeatedly from the tracheal aspirate. Rapid clinical improvement with bacteriological clearing resulted from novobiocin therapy. A culture of a strain of *Proteus mirabilis* was made simultaneously from the urine of this patient but was not eradicated during therapy.

The one case of otitis media treated in this group failed to respond to novobiocin.

TABLE II

INFECTIONS OF SKIN, WOUND AND BONE TREATED WITH NOVOBIOCIN

| Case | Age | Diagnosis | Organism and Source | Total Dosage | Response and Comment |
|---|---|---|---|---|---|
| 12 | 17 | breast abscess | hem. Staph. aureus<br>drainage from abscess | 11.5 gms.<br>7 days | Good-rash 7th day<br>increased bilirubin<br>eosinophilia |
| 13 | 8 | cellulitis leg | hem. Staph. aureus<br>beta-hem. strep.<br>drainage | 3.75 gms.<br>7 days | Good-local therapy makes evaluation difficult, eosinophilia |
| 14 | 3 | pyoderma scalp<br>conjunctivitis | hem. Staph. aureus<br>scalp and eye | 1.125 gms.<br>6 days | Good-local therapy makes evaluation difficult |
| 15 | 13 mos. | eczema with pyoderma | hem. Staph. aureus<br>beta-hem. strep.<br>skin | 2.0 gms.<br>12 days | Good-local therapy makes evaluation difficult |
| 16 | 19 mos. | cellulitis leg | hem. Staph. aureus<br>beta-hem. strep.<br>skin | 3.125 gms.<br>8 days | Good-elevated bilirubin and cephalin flocculation |
| 17 | 83 | diabetes<br>infected stump<br>draining abscess | hem. Staph. aureus<br>stump and abscess | 31.0 gms.<br>30 days | Good-Staph. not cleared from wound, eosinophilia |
| 18 | 61 | chronic osteo.<br>draining sinus | spreading proteus<br>Staph. albus<br>drainage | 13.5 gms.<br>8 days | Poor-elevated bilirubin, cephalin flocculation |
| 19 | 67 | acute osteo. | hem. Staph. aureus<br>aspiration | 20.5 gms.<br>13 days | Good-improved after surgical drainage<br>eosinophilia |

### Staphylococcal Infections of Skin, Bone, and Wound

Four children with skin infections were treated with oral novobiocin plus local therapy consisting of cleansing and applying warm compresses. A culture of the lesions revealed a novobiocin-sensitive hemolytic *Staph. aureus* with a novobiocin-resistant beta-hemolytic streptococcus. Clearing was rapid in all four patients, but the efficacy of local therapy obscured the response to the antibiotic.

Two adults with osteomyelitis were treated with novobiocin. The patient with chronic osteomyelitis showed no improvement. Case #19 presented acute osteomyelitis of the femur, extending into the knee joint. A culture of the joint fluid revealed a penicillin-resistant, novobiocin-sensitive *Staph. aureus.* No improvement resulted from penicillin therapy and novobiocin was added to the regimen. Resultant clinical improvement of the joint was striking, but the patient remained febrile until adequate surgical drainage was obtained. Case #17, a debilitated 83-year-old diabetic patient, had an infected stump resulting from an amputation. A *Staph. aureus* was isolated repeatedly from the infection. This organism was resistant to practically all of the available antibiotics except novobiocin. Treatment with this agent failed to eradicate the staphylococcus from the infected wound but may have prevented further staphylococcal invasion of this debilitated patient. Several cutaneous abscesses (due to *Staph. aureus*) healed rapidly after therapy.

### Staphylococcus Bacteremia

Three cases of staphylococcus bacteremia were treated with novobiocin in combination with another antibiotic. Two were paraplegic patients, and the bacteremia was thought to be secondary to infected decubitus ulcers. The third patient was suffering from acute bacterial endocarditis. Case #20, a paraplegic patient with bacteremia, was treated initially with novobiocin alone (at another hospital) and responded well. When transferred to the Delaware Hospital the patient was again febrile, and blood culture revealed a *Staph. aureus* relatively resistant to novobiocin (MIC-6.25 mcgm. per cc). However, therapy was instituted with novobiocin (2.0 gm. per day) and chloramphenicol (4.0 gm. per day). This combination failed to produce a permanent remission, though no further positive blood cultures were obtained. The patient was subsequently treated with a combination of penicillin and neomycin, with excellent results. Case #22 was initially treated with a combination of neomycin and chloramphenicol and then placed on novobiocin and chloramphenicol without evidence of relapse.

The patient with acute bacterial endocarditis (case #21) was treated with peni-

TABLE III

INFECTIONS OF BLOOD STREAM TREATED WITH NOVOBIOCIN

| Case | Age | Diagnosis | Organism and Source | Total Dosage | Response and Comment |
|---|---|---|---|---|---|
| 20 | 42 | bacteremia<br>paraplegia<br>decubitis | hem. Staph. aureus<br>blood | 47.0 gms.<br>18 days | Poor-chloramphenicol also; no positive cultures, post treatment fever persisted subsequent treatment with neomycin and penicillin successful |
| 21 | 40 | acute bacterial endocarditis | hem. Staph. aureus<br>blood | 92.0 gms.<br>28 days | Good-penicillin also. Died post-operatively after bowel resection, mycotic aneurysm, apparently bacteriologically cleared, eosinophilia |
| 22 | 37 | bacteremia<br>paraplegia<br>decubitis | hem. Staph. aureus<br>blood | 54.0 gms.<br>27 days | Good-chloramphenicol also. Previously treated with neomycin and chloramphenicol with good results, eosinophilia |

TABLE IV

INFECTIONS OF URINARY TRACT TREATED WITH NOVOBIOCIN

| Case | Age | Diagnosis | Organism and Source | Total Dosage | Response and Comment |
|---|---|---|---|---|---|
| 23 | 5 | hydrocephalus urinary tract infection | Proteus mirabilis urine | 1.5 gms. 7 days | Poor-proteus cleared replaced by E. coli no clinical improvement |
| 24 | 8 mos. | stricture meatus | Staph. albus urine | 2.5 gms. 10 days | Poor-Staph. replaced by A. aerogenes |
| 25 | 34 | renal calculus | Proteus mirabilis urine | 7.5 gms. 7 days | Poor-proteus not cleared rash 7th day with fever |
| 26 | 16 | paraplegia cord bladder | Proteus mirabilis urine | 6.75 gms. 7 days | Poor-proteus not cleared |
| 27 | 13 | paraplegia cord bladder | Proteus mirabilis urine | 6.75 gms. 7 days | Poor-proteus not cleared rash on 7th day |
| 28 | 12 | paraplegia cord bladder | Proteus mirabilis urine | 8.0 gms. 8 days | Poor-proteus cleared, returned, post treatment rash on 8th day |

cillin and novobiocin; the latter initially in a dose of 2.0 gm. per day and subsequently increased to 4.0 gm. per day. The clinical response was good but the condition was complicated by a mycotic aneurysm of the mesenteric artery which required massive bowel resection. The patient died postoperatively, apparently bacteriologically cured.

### URINARY TRACT INFECTIONS

Five cases of chronic urinary tract infection due to *Proteus mirabilis* were treated with novobiocin. In 2 of the 5 cases the proteus was cleared from the urine during treatment. In one case subsequent culture revealed an *Esch. coli*, and in the other the proteus reappeared after therapy. In the remaining 3 cases the proteus was not cleared during therapy.

### SIDE EFFECTS

NOVOBIOCIN THERAPY — SIDE EFFECTS
(28 Cases)

| | Number of Cases | Percent of Total |
|---|---|---|
| Drug Eruption | 5 | 17.8 |
| Eosinophilia | 7 | 25. |
| Altered liver function studies, other than increased icterus (16 cases only)* | 5 | 17.8 |

12 of 28 cases did not have liver function studies.

Five of the 28 patients (17.5%) in this series developed allergic dermatitis manifested as a maculo-papular eruption over the face, arms, chest and upper abdomen. There was usually mild, associated pruritis and fever occurred concomitantly in 2 of the 5 patients. The eruption occurred on the sixth to eighth day in all cases and therapy was discontinued immediately. The dermatitis subsided in from two to three days and there were no sequellae. Skin tests with novobiocin were performed on 3 of the 5 patients but the results were not conclusive enough to be significant.

Welch reports[7] that the average drug eruption rate with novobiocin is 8.9%. He believes that the dermatitis is related to dosage and duration of treatment and states that if the dosage of novobiocin is kept at 1.0 gm. per day the incidence of drug eruption should be less than 0.5%. This is based on a study of drug tolerance in 200 healthy adult males. However, 3 of our 5 cases exhibiting a drug eruption received a dosage of 1.0 gm. per day or less for less than 10 days. The other two cases received 1.5 gm. per day for 7 days and 2.0 gm. per day for 8 days. In this small series of cases there seemed to be little association between dosage and the occurrence of dermatitis.

Leukopenia, though rare, has been reported[1,8] to occur during novobiocin therapy. It was not seen in our series. Eosinophilia, however, was a common occurrence. Seven of 28 patients (25%) demonstrated eosinophilia during therapy. A count of 8% or above was regarded as eosinophilia. Two of the 7 patients with eosinophilia also ex-

### In Vitro Studies

| Organism | Number of Strains Tested | MIC* NOVOBIOCIN (Test Tube) Mcgm/cc | | | | |
|---|---|---|---|---|---|---|
| | | 0.05-0.20 | 0.20-2.0 | 2.0-12.5 | 12.5-25 | 50 and Over |
| Staph. aureus | 25 | 18** | 6 | 1 | | |
| Proteus mirabilis | 13 | | | 7 | 6 | |
| A. aerogenes | 8 | | | | | 8 |
| Beta-hemolytic streptococcus | 7 | | 1 | | | 6 |
| Pseudomonas | 6 | | | | | 6 |
| E. coli | 3 | | | | 1 | 2 |
| Pneumococcus | 1 | 1 | | | | |
| Proteus morgani | 1 | | | | | 1 |
| Proteus rettgeri | 1 | | | | | 1 |

* Minimum inhibitory concentration.

** Number of strains sensitive to indicated concentration.

hibited a drug eruption. In 4 of the 7 patients the percentage of eosinophils had decreased on the post-treatment count; in the remaining 3, the level had remained the same or slightly increased. Two additional patients had eosinophilia on pretreatment counts with subsequent increase during therapy.

Sixteen of the 28 patients in this study had liver function studies once or more during therapy with novobiocin. An increase in icterus index was quite common and was ascribed to pigmentation of the serum by a breakdown product of novobiocin.[8] Five of the 16 patients (31.2%) had altered liver function studies other than increased icterus; including increased serum bilirubin, thymol turbidity, and cephalin flocculation. Unfortunately, pretreatment function studies were not done in every case and it would be difficult to implicate the novobiocin as an etiologic agent. The liver function alteration may well have been a result of the acute infection.

The minimal inhibitory concentration of novobiocin was determined for 55 strains of various organisms isolated from clinical material, and for 10 stock strains of penicillin-resistant *Staph. aureus*. All determinations were carried out with test tube technique using two-fold serial dilutions. The results are presented in table 2. All but one of the strains of *Staph. aureus* were sensitive to 2 mcgm. or less of novobiocin. One strain was somewhat less sensitive, requiring 6.25 mcgm. per cc. for inhibition. This strain was isolated from the blood stream of case #20, following 2 weeks of novobiocin therapy. The original strain of *Staph. aureus* isolated from this patient was not available to us for study. The possibility exists that this represents the development of resistance to novobiocin in vivo; a phenomenon which has been reported in the literature.[3] Six of the 7 strains of beta-hemolytic streptococcus were resistant to novobiocin. Relative resistance of this organism has been reported in other studies.[5]

*Proteus mirabilis* appears to be relatively more sensitive to novobiocin than the other gram-negative rods tested. More strains of *P. morgani*, *P. rettgeri* and *P. vulgaris* should be tested to establish a difference in sensitivity among the strains of the proteus species.

Novobiocin serum levels* and/or Schlichter titers were performed on 12 of the patients in this study. The Schlichter titers were satisfactory in all but one case. This patient suffered from cellulitis due to a novobiocin-sensitive strain of *Staph. aureus.* On adequate dosage of novobiocin the patient's undiluted serum failed to inhibit the organism. The clinical response, however, was satisfactory.

Novobiocin serum levels were satisfactory in all patients tested. Following a dose of 125 mgm. in an eight year old boy, the serum level ranged from 14 mcgm./cc two hours after the dose to 6 mcgm./cc six hours after ingestion. An adult receiving 1.0 gm. of novobiocin every twelve hours

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* The authors are indebted to Dr. Edwin Richardson, Biochemist, Delaware Hospital for performing the serum novobiocin levels.

NOVOBIOCIN THERAPY — RESULTS
(28 Cases)

| | Good | Poor |
|---|---|---|
| Pneumonia | 6 | 0 |
| Upper respiratory infections (tracheitis, tonsillitis, otitis) | 4 | 1 |
| Skin infections (including wounds) | 6 | 0 |
| Osteomyelitis | 1 | 1 |
| Bacteremia (staphylococcal) | 2* | 1 |
| Urinary tract infection | 0 | 6 |
| Total | 19 | 9 |

* In conjunction with other antibiotics.

showed a serum level of 60 mcgm./cc two hours after the dose. This level dropped to 15 mcgm./cc in six hours. That novobiocin is well absorbed and results in unusually high blood levels is substantiated in the medical literature.[4,7]

## COMMENT

This new antibiotic, effective in vitro against a number of gram-positive organisms and a few gram-negative strains, has been used to treat 28 patients with a variety of infections.

The results in specific infections have been discussed. The overall results reveal that novobiocin produced good results in 19 of the 28 cases (67.8%). Table #3 shows the results as to type of infection. If the patients with urinary tract infections are excluded from this evaluation, good results were obtained in 86.3% of the cases treated. However, these patients were not chosen at random, but rather selected from among the less critical ill admissions. Patients with staphylococcus and proteus infections were sought out for inclusion in the study. In the 19 cases classified as having good results the clinical improvement was as prompt as experienced with other available similar agents.

The allergic dermatitis seen in 5 of the 28 patients produced no sequellae and subsided rapidly. However, the appearance of the eruption was of such alarming proportions to the patient and attending physicians (though the latter had been forewarned) that the resultant effect was to curtail the number of patients available for this study.

The efficacy of novobiocin in a variety of clinical infections has been demonstrated. Still the optimum value of this drug will be the treatment of patients suffering from infections due to antibiotic-resistant staphylococci. If the widespread use of this drug is stressed, the development of resistant strains may eliminate this one indication. There is no apparent need for novobiocin in the armamentarium for day to day treatment of infectious diseases. Therefore, we strongly urge that the use of this antibiotic be reserved for the hospital treatment of staphylococcal infections. Perhaps the inherent side effects of novobiocin therapy will have a desirable self-limiting effect.

The authors are indebted to the members of the visiting staff and house staff of the Delaware Hospital, who cooperated in this study.

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# A REVIEW OF ROCKY MOUNTAIN SPOTTED FEVER IN DELAWARE

Lewis B. Flinn, M.D.*

In 1946, a summary of cases of Rocky Mountain spotted fever occurring in Delaware was reported, including a report of ten cases treated with para-aminobenzoic acid (PABA)[1]. The beneficial effect of such treatment was clearly demonstrated. Shortly thereafter, antibiotics became available. There have been several reports of successful treatment of Rocky Mountain spotted fever with chloramphenicol, aureomycin and tetracycline.[2,3,4] Before PABA, the mortality of Rocky Mountain spotted fever in Delaware was 52 per cent in patients over the age of 40 years, and 7 per cent in those under 40 years. Treatment with PABA shortened the morbidity and almost eliminated the mortality. Antibiotics are easier to administer, it is not necessary to determine the blood level and, with adequate dosage, there is a more dramatic and prompt subsidence of fever and return to health.

In view of our previous studies, it seemed desirable to evaluate the present status of Rocky Mountain spotted fever in Delaware and particularly to review the records of those patients treated in Wilmington hospitals. The State Board of Health data indicate that fewer cases are now being reported—in the last five years, there were only 14 cases contrasted with 50 cases in the decade preceding 1945; three of these 14 died, all under 40 years of age and none received either antibiotics or PABA. Seven of the remaining 11 patients were under eight years of age, one was 16 and three were over 40 years. There were six cases from New Castle County. Four patients have been treated in the Delaware Hospital and two in the Memorial Hospital. Three of these have occurred within the last 18 months, all over the age of 40, and all three living in Mill Creek Hundred. The case reports follow:

Case #1. Female, age 20 months (Delaware Hospital) (7/20/51)

History of tick-bite three days before onset of fever. Rash appeared on second day of fever and patient was admitted to the hospital on the fifth day of disease and treatment with chloramphenicol was started immediately. Fever stopped in 36 hours. Dose of the antibiotic was 800 mg. daily for two days, then 400 mg. a day. OX19 was negative. Comment: Excellent result—no positive serologic tests.

Case #2. Female, age 4 years (Memorial Hospital) (5/14/51)

History of exposure to ticks. Fever was present four days before admission to the hospital. Skin rash appeared on second day of fever. Chloramphenicol was begun on admission in dosage of 1.25 gm. a day, for two days, and then 1.5 gm. a day. Fever subsided in 48 hours. OX19 was negative (one examination). Comment: Adequate treatment given promptly but negative Weil-Felix.

Case #3. Female, age 48 years (Delaware Hospital) (6/21/55)

Patient was exposed to ticks but no known tick bite. Fever was present five days before admission. Rash appeared on the seventh day of fever and tetracycline was started on the eighth day. Fever subsided in 48 hours. Dosage 2 gm. per day. Weil-Felix reaction negative and complement fixation negative (2 times and again one year later).

Case #4. Male, age 56 years (Delaware Hospital) (5/10/56)

Patient developed malaise, weakness and fever of 101° F. five days before admission. On third day, he received tetracycline, 1.5 gm. per day. Fever decreased but rash appeared on legs and antibiotic was stopped because itching and joint pains raised question of sensitivity to the drug. Fever recurred and symptoms increased and rash became typical of Rocky Mountain spotted fever appearing on palms and soles. Tetracycline was again administered, 1 gm. loading dose, and then 2 gms. a day. Prednisone, 15 mg. a day, was also given. Fever subsided in 12 hours and rapid convalescence followed. Weil-Felix reaction was negative (twice). Complement fixation test was also negative as late as six months later. Comment: Drug stopped prematurely with exacerbation of symptoms. Should have been continued in still larger amount.

Case #5. Female, age 4½ years (Memorial Hospital) (6/8/54)

Patient was exposed to ticks. Fever for four days before admission to hospital. Rash appeared on the fourth day of disease, the first day of admission. OX19=1:320. Chloramphenicol was started on eighth day of disease in dose of 450 mg. the first day, 400 mg. daily for the next two days. Fever subsided on 11th day and the dose of drug was decreased to 300 mg. and then 200 mg. a day. There was a recurrence of fever on the 13th day which responded swiftly to increase in dosage. Comment: Probably insufficient dosage.

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CASE #6. Female, age 37 years (Delaware Hospital) (11/1/56)

Patient was exposed to ticks. Sick with fever three or four days before admission. Spots on extremities on admission. Prostration, WBC 3100, itching. Rash progressed to include palms and soles. Had been given penicillin for two days and also antihistamines. On seventh day of disease, tetracycline was given, 750 mg. to 1 gm. a day. Fever slowly dropped to normal on the 12th day. Weil-Felix Test negative (twice), complement fixation negative (twice), the last test four weeks after discharge. Comment: Probably insufficient dosage of tetracycline.

## DISCUSSION

About two thousand cases of rickettsial disease occur each year throughout the country. Five hundred of these are Rocky Mountain spotted fever. The epidemiology of Rocky Mountain spotted fever was first demonstrated by Ricketts in 1906 when he transmitted the disease to laboratory animals by inoculation with blood from humans sick with the disease. The wood tick, Dermacentor Andersoni, harbors the organism now known as Rickettsia, and infects animals or humans by biting and blood sucking. The organism can be seen under the microscope and is between a virus and a bacterium in size and characteristics. It is a pleomorphic cocco-bacillary organism which multiplies only within certain cells of susceptible animals, is found in various arthropods, and causes an acute febrile illness, usually with skin rash, in man. The female tick transmits the rickettsiae to her offspring. Ticks do not travel by themselves more than a few feet. Ticks in one field may be infected with non-infected ticks in an adjoining field. Rabbits, foxes, dogs and sheep may widen the infected area.

Rocky Mountain spotted fever is most prevalent in this country in the Rocky Mountain region and in Delaware, Maryland, Virginia, and North Carolina. The main Rickettsial diseases are epidemic louse borne typhus, Brills disease or sporadic non-epidemic or relapsing typhus, endemic or murine typhus from the rat flea, the spotted fever group, and Australian Q Fever. The latter is peculiar in that no rash is present. In the typhus group, the rash usually appears on the body first and rarely involves the palms and soles. In the spotted fever group, on the other hand, the rash appears first on the arms, wrists, and thighs, and then spreads over the trunk, face, palms, and soles. The rash is measles-like at first, later purpuric and hemorrhagic. It is blood borne, causing arteriolar or capillary rupture. The testes and their adnexae and the brain are especially involved with hemorrhage.

The most reliable diagnostic test is transfer of rickettsiae to guinea pigs by intraperitoneal injection of the patient's blood. The Weil-Felix reaction, virus neutralization, and the complement fixation are all helpful measures in diagnosis. Investigators working with Woodward[2] and also Parker[3] have indicated that prompt antibiotic therapy does not interfere with either the Weil-Felix or complement fixation reactions. This is explained by the fact that the antibiotics are rickettsial-static, not rickettsial-cidal; and therefore, recovery depends upon the patient's ability to develop immunity. This, however, has not been our experience. Our cases, here reported, although not proven by guinea pig inoculation, were most certainly cases of Rocky Mountain spotted fever, but the Weil-Felix reaction was positive in only one, and the complement fixation in none of the three in which it was performed. This is in contrast with cases treated here previously in the same hospitals without antibiotics. Harrell[5] has noted that evidence is accumulating that early vigorous treatment may suppress or delay the Weil-Felix and complement fixation tests. Woodward[6] recently has experienced a similar tendency and suggests that delay in development of antibodies is due to lessening of the antigenic mass in that the antibiotic reduces the number of Rickettsiae, and hence there is less stimulation of antibody production. It may be difficult, therefore, at times to confirm diagnosis by serologic methods.

Cortisone[3] has been found helpful as an adjuvant to antibiotics. The febrile period is greatly shortened, at times to a matter of hours. This seemed to be true in Case #4. The several cases reported here seem to confirm the statement of others that the optimum adult dose is approximately 50-60 mg. per kilo of body weight as an initial loading dose, and then 50-100 mg. per kilogram per 24 hours until the temperature has been normal for at least one day. Several of our cases were undoubtedly prolonged by too low dosage, and one, Case #5, had a relapse.

## Summary

(1) Attention is called to the fact that Rocky Mountain spotted fever, one of the most severe of the rickettsial diseases, is still endemic in Delaware. One focus seems to be in Mill Creek Hundred.

(2) Prompt adequate treatment with antibiotics, with or without steroids, will almost certainly prevent death and usually will greatly shorten the morbidity.

(3) Diagnosis must be made promptly on the basis of history and clinical findings. Animal inoculation of the patient's blood within the first few days may assure the diagnosis. Serological tests after treatment has been instituted may or may not be positive.

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# CLINICOPATHOLOGIC CONFERENCE

OCTOBER 11, 1956

A Negro male, 64 years old, was admitted to the Delaware Hospital complaining of constipation. He had been in good health until four years before admission at which time he developed a persistent non-productive cough. This occurred shortly after he had started working in a fiber mill and his fellow workers advised him to drink alcoholic beverages in large quantities in order to prevent pulmonary complications of fiber inhalation. The cough persisted, however, and soon became productive of white sputum with occasional blood streaking. One year prior to admission he developed exertional dyspnea, orthopnea and ankle edema. He lost 40 pounds in the ten months before admission; this was due to anorexia. He had complained of constipation for six months, having one or two bowel movements per week. His stools were normal in size but hard and were passed with pain. He never noted vomiting, abdominal pain or bloody stools. He worked until two weeks before admission at which time he became confused, disoriented and a problem to his family.

He had pneumonia and jaundice in 1924. There was no personal or family history of diabetes, tuberculosis or tumor. He had complained of nocturia and urinary frequency but the system review other than this was normal.

Examination was that of a confused and disoriented man who showed evidence of weight loss. Firm, freely movable nodes were present in both cervical regions and a single node was found in the right supraclavicular region. The retinal arterioles were moderately sclerotic. The percussion note was impaired below the right scapula and in the right axilla; the breath sounds in this area were bronchial in character. A grade 3 systolic murmur was heard at the base of the heart. The liver edge was firm and nodular and was found to be 10 cm. below the costal margin. The stool appeared to be normal; the guiac and benzidine tests were negative. The neurological examination was normal.

*Laboratory examinations:*

Hemoglobin—11.7 Gm. %
Leucocytes—10,000 per cmm.
  Differential count—normal.
Urinalysis—normal except 20 to 30 WBC/HPF and occasional hyaline cast.
Serologic test for syphilis—negative.
Blood urea nitrogen—24 mg. %
Total protein—5.95 Gm. %
  Albumin—3.16 Gm. %
  Globulin—2.79 Gm. %
Serum phosphorus—4.3 mg. %
Serum calcium—12.9 mg. %
Alkaline phosphatase—2.6 Bodansky units.
Acid phosphatase—0.0 Bodansky units.
Serum bilirubin—
  Total—0.89
  Direct—0.83
Creatinine—3.4 mg. %
Serum chloride—520 mg. %
$CO_2$ combining power—47 vol. %
Urine culture—pseudomonas species.
Sternal marrow culture—no growth, anaerobic or aerobic, in 22 days.
Gastric washings and guinea pig injecttion—negative for tuberculosis.

Spinal puncture showed pressure of 60 mm. of cerebrospinal fluid. The fluid was clear and colorless; protein negative. There were less than one WBC per cmm. Wasserman, colloidal gold and cluture were negative. A second tap one week later resulted in similar findings.

X-ray of the chest showed elevation of the right dome of the diaphragm, obliteration of both costo-phrenic angles and advanced infiltration of the apex of the right lung with pleural thickening and mottling.

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X-ray examination showed the skull to be normal.

The electrocardiogram showed ST segment depression in all leads except CR-3 with T wave inversion in the limb leads. The interpretation was that these changes could be on the basis of concentric heart strain or coronary insufficiency.

*Hospital course:* His rectal temperature spiked to 100 to 101°F. daily. He was given fluids intravenously. On the fourth hospital day his coma was deeper and his respirations were Cheyne-Stokes in character. He was then given 300,000 units of procaine penicillin and 0.5 Gm. streptomycin twice daily. His course was progressively downhill and he died on the twelfth day of hospitalization.

Dr. C. J. Poolos*: The features which impressed me most in this case were:

1. Hepatomegaly—a firm, nodular liver, 10 cm. below the costal margin was excellent evidence of liver disease.
2. The 40 pound weight loss in ten months —this indicated that the man's disease probably started at least 12 months ago and gradually progressed until death.
3. The physical and x-ray findings of pulmonary disease involving the right upper lobe.
4. The confused and disoriented state at the time of hospital admission and the comatose state which he entered four days later.
5. The cervical and right supraclavicular lymph node involvement may or may not have been significant.

Of the five major divisions of disease, it is obvious that this man's disease was not due to a congenital anomaly nor do I think that it was a DEGENERATIVE DISEASE. However, the patient probably did have arteriosclerotic heart disease and arteriosclerotic retinopathy as a secondary diagnosis.

His primary disease was probably not due to a disturbance of blood flow. However, it is possible that he was in mild congestive heart failure at the time of admission. He did have symptoms of orthopnea, exertional dyspnea, and ankle edema. The normal-sized heart and pulmonary findings, both clinically and by x-ray, did not verify this diagnosis, and the nature of the hepatic enlargement was not that of congestive heart failure. The patient could have had a cerebral vascular accident. The absence of neurological and spinal fluid findings do not exclude this diagnosis. However, the other physical findings and 40 pound weight loss do not allow me to make this the primary diagnosis. The patient could have had subacute bacterial endocarditis with a cerebral emoblus as the cause of his disoriented and confused state on admission. He did have a murmur, he was anemic and he did have a low grade fever. However, there was no history of rheumatic fever and there was no mention of positive blood cultures. None of the other features of subacute bacterial endocarditis, such as a changing quality of a murmur, Osler's nodes, Janeway's spots, was present. The patient could have had a pulmonary embolus but the presence of other historical and physical findings of at least one year's duration do not allow me to make this a primary diagnosis.

Now let us consider INFECTIOUS DISEASES.

Tuberculosis has not been completely ruled out. This could have caused his dyspnea, orthopnea, chronic cough and weight loss. It is possible that a tuberculous meningitis caused his terminal comatose state. However, it was never possible to culture the acid fast bacillus, either from gastric washings or from spinal fluid. A PPD was never done. The neurological examination revealed no positive findings and the spinal fluid examination revealed no abnormalities. In addition, the hepatomegaly would have been difficult to explain on the basis of this diagnosis.

Another diagnosis to be considered is lung abscess with metastatic formation of a drain abscess. In this disease there is often a history of oral surgery or previous pneumonic process. The fever is usually high and often relapsing. The patient is constantly coughing up copious amounts of muco-purulent, foul smelling and often bloody sputum. This was not present in this patient. The x-ray picture of lung abscess may show merely a consolidated portion of lung but in the advanced case there is usually cavitation and fluid accumulation. However, if this were the diagnosis, the absence of neurological signs and spinal fluid abnormalities would not rule out the presence of a brain abscess.

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* Intern, Delaware Hospital.

If the cause of this man's disease was a myocotic infection, histoplasmosis would be the most likely possibility. The diagnosis of pulmonary mycotic infection depends upon the demonstration of the fungus on culture and smear and the presence of positive skin tests. The chest x-ray is not characteristic of fungus diseases as a group nor is it helpful in differentiating the different mycoses. The benign form of histoplasmosis would not have caused this man to lose 40 pounds of weight in ten months and then to die in coma. The rarer systemic form could have caused such a clinical picture. In this form of histoplasmosis, primary invasion of the lungs is not usual but late invasion can occur. In addition to the fever and cachexia there is usually hepato- and spleno-megaly with generalized lymph node involvement. The x-ray picture is that of a bilateral disseminated lesion. Actually, there are progressive and fatal forms of the other mycoses that would cause pulmonary and hepatic involvement. However, it is difficult to arrive at a diagnosis without a characteristic cutaneous manifestation or laboratory findings.

Sarcoidosis is not a likely cause for this man's death because of the absence of x-ray evidence of miliary infiltration or accentuation of hilar nodes. There was no hyperglobulinemia or eosinophilia. There were no bone or skin changes evident and there was no splenomegaly. Progression of sarcoidosis is usually slow and recovery is the rule in the majority of cases.

Finally, because this man worked in a fiber mill, one of the pneumoconioses should be considered. The absence of bilateral miliary lung involvement rules against this diagnosis. In addition, the down-hill course of this man's disease, in ten months and the absence of marked impariment of pulmonary function in that time did not make this a likely diagnosis. Again, hepatomegaly would have been difficult to explain.

Finally, we must consider the NEOPLASTIC DISEASES. I believe that this man died of a neoplastic disease because of the chronicity of the disease and the steady down-hill course with weight loss and general cachexia. I believe that the primary site was in the right lung with metastases to the brain, liver, and possibly the lymph nodes. The most common lung malignancy is bronchogenic carcinoma. The patient's age and sex favor this diagnosis, as do the physical and x-ray findings of right upper lobe pulmonary disease. The presence of an enlarged, nodular liver is characteristic of hepatic metastases. The brain and right supraclavicular nodes are also favored sites for metastases. The absence of gross derangement in the liver function tests is also possible with malignancy. The presence of normal spinal fluid findings in a disoriented and confused patient is also possible in cerebral metastases.

Another less common lung malignancy is alveolar cell carcinoma. The x-ray picture of this tumor is that of extensive, bilateral, miliary lung infiltration. In addition, there is usually a chronic cough productive of large amounts of sputum. Our patient did not have these findings.

If this neoplasm was not primarily pulmonary, it could have metastasized there from another site. The patient could have had a hepatoma with metastases to the lungs and brain. In this rare disease the liver is characteristically enlarged and nodular. In addition, ascites and jaundice are usually present. Abdominal pain is frequently a prominent feature. As a rule, distant metastases are not common and the liver function tests are not grossly abnormal. However, I believe that this is not a good possibility. It is possible the primary site of this neoplasm was in the stomach or colon. Actually, the patient's chief complaint was referable to the gastrointestinal system. The patient was constipated and he did have painful bowel movements. However, his stools were negative for occult blood and there were never any masses palpated rectally or abdominally. He never had tarry or bloody stools. In spite of this I still believe that the gastrointestinal tract is a good possibility for a primary site of malignancy. Prostatic carcinoma could also have been present in this case despite a normal rectal examination. However, if we assume that there are metastases, the acid phosphotase determination would probably be elevated. The primary tumor might also have been in the body or the tail of the pancreas. Tumor from the second and third portion of the pancreas are notoriously difficult to diagnose. There are no indications that the primary lesion was a bone tumor. A malignant lymphoma might have been the cause of this man's disease. This might have been due to hilar involvement in the right lung that caused right upper lobe atelectasis or direct lymphomatous infiltration of the right upper lobe. The x-ray reveals no evidence of hilar node involvement. The only nodes that were palpable were in the cervical and supraclavicular regions. There was no splenomegaly or evidence of bone marrow infiltration. Again, the description of our patient's course and terminal state does not fit in well with the diagnosis of lymphoma.

In summary, my primary diagnosis is bronchogenic carcinoma with metastases to the liver and brain. My second choice is a gastrointestinal neoplasm, either in the stomach or pancreas, with hepatic and pulmonary metastases. My third choice is pulmonary tuberculosis.

## Autopsy Findings

Dr. R. J. Colfer*:

An autopsy was performed about two hours after death and revealed the following:

The right lung weighed 750 grams and sharp dissection was required to remove it. The pleural surface was generally roughened from many fibrous, pleural adhesions. Numerous hilar lymph nodes were found on the right, measuring up to 2.5 cm. in diameter. The majority of the nodes contained a white, firm tissue resembling tumor. Dissection of the bronchial tree revealed a mass of firm, whitish tissue measuring 3.5 cm. in diameter which surrounded and partially occluded the proximal portion of the right upper lobe bronchus. The upper lobe, beyond the tumor, showed bronchiectasis of abscess cavities, some of which measured up to 1 cm. in diameter. There was irregular, nodular, induration of the lower lobes. The pleura was not involved by tumor.

The left lung also weighed 750 grams and showed congestion, edema and bronchopneumonia. No evidence of tumor was seen. The liver weighed 2,400 grams. The anterior aspect of the right lobe showed several surface tumor nodules, averaging 2.5 cm. Cut sections revealed numerous, whitish nodules of tumor tissue throughout the right lobe. The left lobe was relatively uninvolved and showed uniformly, reddish-brown liver tissue. The gallbladder was negative and the biled ducts patent.

The left adrenal was three times the size of the right and almost entirely replaced with tumor tissue. The right showed no abnormalities.

The brain was sectioned and showed no abnormality.

Pathologic Diagnosis:

1. Squamous cell carcinoma of bronchus with partial bronchial obstruction.
2. Bronchiectasis of abscess cavities, right upper lobe.
3. Secondary squamous cell carcinoma of liver and left adrenal.
4. Bronchopneumonia, bilateral.

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* Assistant Pathologist, Delaware Hospital.

FRANK F. PIERSON, M. D.
1869-1957

When Doctor Frank Pierson came to Wilmington from his native Milford he brought with him a sincerity of purpose and simplicity of manner which have endeared him to all. Practicing medicine for the amazing period of 65 years, he was loved, admired and respected by patients and colleagues. Truly a "Doctor's Doctor", his opinion was often sought and highly valued. He had the fascinating experience of living during the birth of the "Golden Age" of Medicine, and he eagerly took advantage of the many discoveries as they appeared and applied them in his practice.

Because this man made his community a better place in which to live his memory will remain always with those whose great privilege it has been to know and work with him.

## WOMAN'S AUXILIARY

### KENT COUNTY

Greetings and a Happy New Year from Kent County!

Kent County, being small and the members of the Auxiliary widely distributed, has but three meetings a year. The first was held at the Dinner Bell Inn in Dover early in December. Mrs. Richard Comegys presided in the absence of the President, Mrs. William C. Pritchard. Mrs. Eugene McNinch, Secretary, read the minutes and reported a total membership of 25.

The Kent County Auxiliary has enjoyed "mothering" its scholarship nurse and this year sent Kay Bolger a manicure set as a Christmas gift. The students seem to enjoy and appreciate the interest and attention of the Auxiliary. As a Mental Health project the Auxiliary sent a check to the Hospital for Mentally Retarded at Stockley for the purchase of large rubber balls to be used for indoor recreation during the winter months. Toys of the Holgate and Playschool type will be collected at the March meeting.

The members of the Kent County Auxiliary do a splendid job in Public Relations, Safety, Health, Social Service, and in just about every department the National Auxiliary covers, in individual contributions to their particular communities in which they live. It would be interesting to total the number of hours given by doctors' wives in community service.

The next meeting will be held early in March and while the record is not spectacular, the Auxiliary to the Kent County Medical Society is a going concern.

### SUSSEX COUNTY

The Woman's Auxiliary of the Medical Society of Sussex County was organized at Rehoboth Beach on September 13, 1948. The general format of the organization was established at that time and we feel that it has proved successful.

Geographical separation ruled out daytime meetings so we agreed to meet coincident with the Medical Society. The men have a meeting, generally in one of the hospitals, while the women meet in the home of a nearby member. After the men adjourn, they join the woman's group for talk and good food and drink—a far cry from the old "sandwich and coffee" nights! The Medical Society approves of this plan, figuring their attendance a bit larger because wives urge husbands to attend, and presents each hostess with a check to help defray expenses.

Our average attendance is about fifteen but we have many loyal members who pay dues even though they are unable to attend meetings.

We send two dollars per capita to the Nursing Scholarship fund and send Christmas and Easter gifts to the Hospital for the Mentally Retarded at Stockley. In 1952 we sent each of our three county hospitals a gift for $50.00.

The need for raising funds is ever present and we hold frequent auctions at meetings for this purpose. A food auction featuring home-made cakes, pies and other delicacies netted $31.45. The auctions usually consist of general merchandise and are a small steady means of enriching the treasury. Before the State of Delaware passed laws making it illegal, a Smithfield ham was chanced off and we realized a profit of $90.88. Another very profitable venture was the making and sale of cocktail napkins, each decorated with a hand-painted Caduceus.

In June of each year the Medical Society includes us in their dinner meeting at the Rehoboth Country Club. This, naturally, is our favorite meeting and we are appreciative of the honor.

Our organization is very loosely knit and most informal. Each member tries, in her own community contacts, to advance the aims of the Medical profession. We feel that we have been drawn closely together in cultivating friendly relations among physicians' families. A cordial invitation is extended to any of you to attend our meetings—the second Thursday of each month.

# + Guest Editorial +

## HOSPITAL COST

Fundamentally the operating expenses of hospitals increase for the same reasons that living costs increase. Many of the same factors that cause expenses in the average home to mount year after year, cause expenses in hospitals to mount. In reviewing cost in the Delaware Hospital since 1949 other factors appear. Most prominent of these factors is added volume, not only in terms of greater numbers of patients, but also in terms of more service for each patient. Changing patterns of diagnosis and treatment, as directed by the profession, have contributed to higher costs. Training programs have added to expense.

The National Industrial Conference Board Consumer Price Index (all items) in Dec. 1949, for example, was 88.8 but as of June 1956 the index had risen to 101.7. (As of Sept. 1956, 102.4). The factors that go into this index are fundamental in the inflationary spiral that the average person or institution encounters in the effort to acquire money and to pay bills.

The largest single factor in the cost of operating hospitals is payroll. In the Delaware Hospital 69% of the operating expense is created by payroll expenditures. In the year 1949 the total operating expense of the Delaware Hospital was $1,763,135.00. In the fiscal year just ended, June 30, 1956, payroll alone amounted to $2,179,214.00. The total operating expense for fiscal 1956 had increased to $3,178,584.

Several factors go into the payroll increase. The first significant factor has to do with hospital tradition which over the years has tended to keep the average wage as low as possible on the premise that the hospital is a charity program and that a minimum expense, which in turn is passed on to the patient, should be incurred. With full payrolls industrially in Delaware and across the nation this principle becomes not only impractical but absolutely wasteful because it results in very high turnover in hospital personnel with a resultant decline in quality of service. Recognizing the fallacy under which they have been operating, hospitals in general have attempted to bring pay to hospital personnel at least up to the average wage for the community in which the hospital operates. In the State of Delaware, particularly in New Castle County, this is a very serious cost problem because hospitals are competing with some industries that pay top wages and, consequently, affect the general labor market.

TABLE I

| | 1949 | 1956 | Increase | Percent Increase |
|---|---|---|---|---|
| Total admissions | 10,297 (1) | | | |
| Total discharges | | 13,529 (1) | 3,232 | 31.4 |
| Total Newborn (excluding premature) | 1,809 (2) | 2,594 (2) | 785 | 43.4 |
| Clinic Visits | 22,274 | 29,531 | 7,257 | 32.5 |
| Private outpatient visits (1952) | 28,171 | 31,720 | 3,549 | 12.2 (3) |
| Total Operating expense | $1,763,135 | $3,178,584 | $1,415,449 | 80. |
| Supplies and other | 695,772 | 999,370 | 303,598 | 43.6 |
| Total Salaries & Commissions | $1,067,363 | $2,179,214 | $1,111,851 | 104.1 |
| Total employees | 612 | 842 | 230 | 37.6 |
| Av. pay per employee (Salaried only) | $ 1,744.00 | $ 2.308.00 | $ 564 | 32.3 |
| Cost per patient day (inc. depreciation) | $ 19.79 | $ 29.31 | $ 9.52 | 48.1 |

(1) Includes prematures
(2) Total births 1949—1942; 1956—2818
(3) 1952-1956 only. Previous data not tabulated.

A second factor in payroll increase has to do with the above-mentioned cost of living index which has continued to rise and apparently will continue to do so. Hospitals, therefore, have been trying to offset a disadvantage by comparison with industry in terms of wages paid and at the same time have been trying to keep abreast of an inflationary spiral. Relatively, therefore, hospital cost since 1949 has gone up more rapidly than the cost of living index.

A third factor in total payroll expense has to do with the rapidly increasing demand for hospital services, both on an inpatient and outpatient basis, which has resulted in adding greater numbers of employees to the hospital payroll to handle the increasing volume of work to be done. As the average community starting salary has advanced, hospitals have been forced to higher starting salaries to attract applicants.

These things are all apparent and have been discussed many times before. Some other elements of hospital cost, so far as I know, have not been discussed to any great extent. From the viewpoint of the average physician these other factors might currently be nonexistent although they play a very vital part in his professional life. Essentially, these elements mean that more patients receive more service, both in diagnosis and treatment. Not only do more patients receive more service but they receive better service than ever before.

An examination of the Department of Radiology in the Delaware Hospital in the year 1949 as compared with the fiscal year 1956 illustrates this point.

TABLE II

X-Ray (Diagnostic)

| Year | Patient | Film | Cost | Per Film | Ratio of Films to Patients | Ave. Direct Cost Per Pt. |
|---|---|---|---|---|---|---|
| 1949 | 13,686 | 33,641 | $ 88,329 | $2.625 | 2.46— | $6.46 |
| 1956 | 21,500 | 71,650 | 194,468 | $2.70 | 3.33+ | $8.99 |

Note, in the above tabulation, that the number of films used increased at a more rapid rate than the number of patients brought in for study and the total expense increased somewhat more rapidly than any other factor. Nevertheless, the cost per film did not increase materially. On the other hand the number of films used per patient increased from 2.46 in 1949 to 3.33 in 1956. Fluoroscopic examinations increased from 1,528 in 1949 to 2,875 in 1956. Patients on both an inpatient and outpatient basis used this department in greater numbers during the years under study but outpatient usage of the department increased more rapidly than inpatient usage. The more rapid increase in number of outpatients may indicate a more judicious use of hospital services on the part of the profession.

There are other comparisons that might be used. For example, in 1949 the Delaware Hospital did Electrocardiograms on 1,552 patients but in 1956 EKGs were done on 2,708 patients. The direct cost per EKG in 1949 was $4.71, but because of the increased volume this dropped in 1956 to $4.28.

Despite the above-mentioned unit costs one factor must be kept constantly in mind: more patients had added to their bills the cost of radiology or electrocardiography. In addition, in the instance of the Department of Radiology the work undertaken was in many instances more extensive than it was in 1949 as evidenced by the number of fluoroscopic examinations, as well as by the increased average films per patient.

A study of laboratory statistics and expense tends to emphasize some of the points raised above.

TABLE III

Clinical-Pathological Laboratory, 1949-1956

| | 1949 | 1953 | 1954 | 1956 |
|---|---|---|---|---|
| Number Examinations | 129,064 | 156,332 | 207,033 | 243,404 |
| Direct Expense ..... | $67,419 | $143,363 | $163,019 | $195,626 |
| Cost Per Exam. (Direct Exp. only) | 52¢ | 92¢ | 79¢ | 80¢ |

In 1954, the statistical basis was changed because of increasing number of laboratory procedures ordered requiring multiple tests in laboratory. Since 1954, statistics show each individual laboratory test rather than groups of tests encompassed in a single written order.

Between 1949 and 1953 payroll increased more rapidly than in the years since 1954. Unit costs reflect this. Adjusted unit costs for 1954 and 1956 give some gross evidence of the extent to which more complex orders affected unit costs between 1949 and 1953. The relatively small increase in unit cost since 1954 reflects also, very creditably, the management effort within the laboratory to keep cost down by means of improved methods and equipment.

The above data deal with the simple and direct aspect of operating expense as it applies to one or two hospital departments. The cost figures are the total of wages and supplies only, or direct expense. There are, however, related expenditures that normally are not taken into account.

In the instance of Electrocardiography virtually all of this work was done for inpatients. The record work and other details, from the viewpoint of the nurses station, almost doubled from the time that the physician wrote his order to the time that the findings of the electrocardiogram were posted in the chart. In addition the Accounting Department was affected, since the number of charges to be entered nearly doubled. Medical Records became involved on a more extensive basis than in 1949. Other hospital departments came into the picture to deal with the problem and also added to the payroll. (See Table I, Total Employees; 1949—612, 1956—842).

As the program expands the impact of increasing thousands of orders that must be processed through hospital records and accounts should be kept in mind, although, ordinarily, in the day to day activities it is not. All of these elements, however, contribute to the overall operating expense of the institution, to some extent in materials and supplies, but more markedly in increased demand upon personnel.

Another facet of the expense of continuing to provide improved service to patients is easily overlooked in the training program. Training programs are part of the basic obligation of the voluntary non-profit hospital and no one wishes to divorce them from the institution. Certainly they must be looked upon by the hospital with pride and as an essential part of the hospital purpose. Nevertheless, the training programs in the Delaware Hospital which cost in 1949 $42,090 had increased in the fiscal year 1956 to $163,000.

TABLE IV

House Staff—1949-1956

| | Interns | Residents | Total House Staff |
|---|---|---|---|
| 1949 | 12 | 12 | 24 |
| 1956 | 16 | 20 M.D.<br>2 D.D.S. | 38 |

To coordinate Training Programs, in 1953, the new position, Director of Medical Education was found necessary and was created.

Cost studies, unless related to total program, can be misleading. One might gain the impression from the above that the hospital has been completely at the mercy of external forces and that management has concerned itself solely with the frantic business of acquiring cash to stave off perilous deficits. Nothing could be farther from fact. Had management so limited its efforts the cost would be far greater than it is.

Since payroll is the greatest hospital expense, management in recent years has focused its attention upon better use of personnel through training programs, job analysis, decentralization and strengthening of management among broader classifications of supervision, time and labor-saving equipment. Improved purchasing also has been one of management's concerns together with economy in inventory, distribution and use of supplies.

The details of these efforts to retard advancing costs may be more acceptable in a separate article.

Richard R. Griffith
Director
The Delaware Hospital

# NEWS AND NOTICES

## DOCTOR-LAWYER MEETING SCHEDULED FOR PHILADELPHIA

The American Medical Association has invited doctors and lawyers in New England and the Eastern States to a medicolegal symposium in Philadelphia, March 29 and 30.

"Medicine and the law must work together so frequently that we feel open discussions of mutual problems would be of great assistance to the two professions," said C. Joseph Stetler, Director of the American Medical Association's Law Department, in announcing the meeting.

One of a series of three such symposiums to be held during March in various sections of the United States, the Philadelphia symposium will feature such subjects as trauma and disease, medical expert testimony and the medical witness. In addition, a mock trial demonstration will take up the introduction in court of chemical tests for intoxication.

Registration fee for the meeting—to be held at the Benjamin Franklin Hotel—is $5.00. This will cover the cost of a luncheon session and a copy of any proceedings that are published. Plans are being made to accommodate 350 attorneys and physicians. However, Mr. Stetler pointed out that advance interest in the symposium is so great that early registrations are advisable.

Applications for attendance, together with the registration fee, should be sent to the Law Department, American Medical Association, 535 North Dearborn, Chicago 10, Illinois.

Other meetings in the current medicolegal series will be held in Atlanta, March 15-16 and in Denver, March 22-23. Last year similar symposiums were held in New York, Chicago and Omaha.

## MEDICAL WRITER'S CONTEST

As announced in previous issues of The Journal, the Delaware Valley Chapter of the American Medical Writer's Association gave an award for the best unpublished 750 word case report submitted prior to November 15, 1956. Many fine case reports were submitted and, we are happy to announce, a fair number were received from Delawareans.

The judges had some difficulty determining the best report but after much deliberation and discussion, they were unanimous in their choice of a paper entitled, "Malignant Tumors of the Pancreas" by S. M. Cantlin, M.D. The prize was presented at the annual dinner meeting on December 17th and everyone was astounded to discover that S. M. Cantlin, M.D. was Doctor Sister Mary Cantlin, Resident in Surgery at the Misericordia Hospital, Philadelphia.

We congratulate the winner for submitting the best paper. We commend all those who submitted papers for their interest—may they continue to show an interest in medical writing.

## A REMINDER TO ALL DELAWARE PHYSICIANS

*Delaware Code, Title 31, Chapter 21, Sec. 2109*—Duty of agencies, physicians and nurses to report blind persons.

Every health and social agency, attending or consulting physician or nurse shall report to the Delaware Commission for the Blind, in writing, the name, age and residence of persons who are blind within the definition of blindness as set forth in this chapter and in such cases shall furnish such additional information as the Commission requests for registration or prevention of blindness.

## CONGRATULATIONS

To Doctor Hewitt Smith, past president of the Medical Society of Delaware, upon his election to the office of Mayor of Harrington.

# A LETTER FROM DR. EDGAR MILLER

It has been four months since Dr. Elizabeth Miller and I arrived in Kathmandu, Nepal. We do not presume to be able to adequately describe medical conditions here, but I thought it might be of interest to relate some of our experiences. Time nor space would not permit the mentioning of the many interesting experiences, some gratifying — some frustrating. After practicing twenty-eight years in an ideal environment and to come out here where health conditions are as low probably as anywhere in the world is quite a contrast.

Nepal has 8,500,000 people and 54 qualified physicians, that is physicians who have graduated from a recognized medical school, mostly in India. Of these doctors, 30 practice in the cities whose populations are about 2,500,000, and 24 doctors practice in the rural areas of which the population is approximately 6,000,000. Most of the physicians who practice in the cities are located in Kathmandu, the capital, with a population of 500,000. Those doctors who speak English are very well trained and have a good knowledge of medicine. They are very sociable, sharing their ideas, and our association has been most pleasant and profitable. In fact one of them does some surgery in our hospital, and quite frequently we are asked to see patients in consultation. Our work consists of hospital work and clinics both at our home base and outlying districts, which range in distance from three to ten miles.

The hospital is a palace built about thirty years ago which we rent from the former king's sister. It contains about fifty rooms, some large enough for a twelve bed ward and some small. We have three wards at present: Ward I, Obstetrics and Gynecology; Ward II, Women's and Children's Medical; Ward III, Men's Ward. There are five private rooms containing from one to four beds. When all of our equipment finally arrives we will have a capacity of 65 beds. This will include a children's ward and nursery.

The hospital clinics are well attended averaging from twenty to over one hundred patients. These are general medical clinics, as well as prenatal and a children's clinic. In our medical clinics all types of patients present themselves, some seriously ill, others with very minor ailments. We plan to start a leprosy clinic with a doctor who has treated and specialized in leprosy for a quarter of a century. Also an eye, ear, nose, and throat clinic is being opened by a specialist, a fine Hindu man who is generous and altruistic in his service.

Three days a week we go out to districts where there is no medical aid. We take with us an interpreter, a nurse, and a clerk. We carry our own medicine and set up in a room which has generally been given to us by a man of the community. We see more pathology in one of these clinics than one would see at home in a month.

A common complaint is pain in the stomach. The most likely diagnosis is intestinal parasites, ascariasis being most common. The stool is examined, and if one gives Santonin (used because it is less expensive), anywhere from three to thirty worms appear. One patient's stool contained ascariasis, whipworm, hookworm, giardia lamblia, and entamoeba cysts. It is common to find two or three types of parasites in one person. To get a negative stool among the peasant class is uncommon because they use night soil as fertilizer, and sanitation and privies are unheard of. This is not true of the wealthy and upper middle class which number about ten per cent of the population. Another cause of pain is amebiasis which often is complicated by amebic hepatitis. Here various preparations are used: the compounds of arsenic such as carbasone; the hydroxyquinolenes, diodiquin and vioform; or chloroquin and its related compounds. For amebic hepatitis Emetine is used by hypodermic injection. Where medicine has to be dispensed many times free, or for a very small fee, one is forced to use the least expensive medication. Hookworm is very prevalent. Tetrachlorethylene is used followed by purgatives. Sometimes Hexylresorcinol Crystoids or Piperazine products are used, but again these are more expensive. We admitted one orphan girl with hookworm infection who was edematous and lethargic with a red blood cell count of 900,000 per cu. mm., hemoglobin of 14 grams % and a white blood cell count of 1800 per cu. mm. She was dirty, listless, and scarcely able to take food. It took about two months to bring her back to normal using several vermifuges, forced diet, iron, and vitamins. There are many other similar cases.

Sulfaquanidine is chiefly used for the dysenteries and diarrheas. Cholera is not too frequently seen, but there is a special hospital here where the patients are treated. There are no doctors or nurses at this hospital, only a compounder. Compounders are specially trained men who learn to prescribe, to give injections and intravenous medications. We do not admit cholera into our hospital due to its high degree of contagion. Often chloroquin or carbasone is used with the sulfaquanidine or a diarrhea tablet containing paregoric and bismuth. So many times one is forced to make a therapeutic rather than an etiological diagnosis. We are fortunate to have a good technician who has two Nepalese laboratory understudies in our hospital, but in the outlying clinics one cannot wait for all the laboratory studies. Giardia lamblia responds well to Atabrine, one tablet three times a day. Enterobiasis vermicularis is not too common. Either Gentian Violet or Crystoids are used here. Whipworm is ignored and as a rule causes very few symptoms and it is difficult to eradicate. Some patients expect to see worms regardless of size. For example, in giving hookworm treatment, a complaint is not effectual because they saw no worms. One man said he knew he had hookworm for he felt their hooks and saw their eyes.

You may wonder about the language. The nurse missionaries are required to spend four hours a day on language study. The physicians are alloted no time. The result is we must have interpreters. As we learn the language, which is coming slowly, it will be less frustrating and more interesting. About five per cent of the people speak English, and it is a great pleasure every now and then to have a patient who speaks English fluently.

Tuberculosis is another common disease. It is an every day occurrence to see two or three cases in one clinic. Pulmonary tuberculosis is most common; next peritoneal or intestinal, then glandular, and bone. The treatment is Streptomycin and Isonicotinic Acid or P.A.S. We generally give Streptomycin, 1 gram. twice a week, and 100 mgs. of Isonicotinic Acid three times a day. Cod liver oil is also prescribed and the usual advice of rest, isolation, and forced feeding. This regime is in many instances impossible for the patient to carry out. There is a hundred bed sanitarium about five miles from here. The waiting list, or as they say here, "no seats", is two years before space is available. We planned to visit this institution but were told the road is impassable even with a jeep during the monsoon season. Pulmonary hemorrhages or moderate hemoptyses are common, and nearly every week a patient comes in with these complaints. We do not admit active cases due to the fact that we must protect our nurses. Just last week I admitted two open cases by mistake. One had all the symptoms of diabetes, another was admitted for herniorraphy, but a pulmonary lesion was found on preoperative examination, and, of course, the operation was not performed.

Typhoid and paratyphoid are very commonly seen. Fortunately our technician can do Widal tests. We have one case of typhoid at present who had been sick fifteen days before coming into the clinic. He had had two capsules of Chloromycetin. I am glad to say he is recovering in spite of all complications of intestinal hemorrhage which caused us much concern and alarm. We gave him intravenous saline and glucose and one small transfusion of blood. An interesting experience occurred in one of our outlying clinics ten miles from here. A boy was brought in that had all the signs and symptoms of typhoid, and I advised Chloromycetin. I was informed that they had the Chloromycetin at home and just wanted to confirm whether or not to use it. A compounder had prescribed it. Some of these compounders have a fairly good practical knowledge of therapeutics and diagnoses. They also set simple fractures and give body massage. One might compare them to a country doctor of a hundred years ago in our country who graduated from a third class medical school. Some of them are "on the level" and advise the patients to consult a physician if a problem is beyond their ability.

Cancer is occasionally seen. In the four months we have been here we have seen three cancers of the male breast, one of which has been operated on and proven by biopsy. A second is scheduled for surgery. All three cases have palpable axillary glands and are of the left breast. Two were x-rayed and show no metastases. Operation was palliative in the one case. Our biopsy specimens are sent to India or to Lebanon (American University). Cancer of the female breast, cervix and uterus is rare. Several patients with carcinoma of the stomach have been seen.

These people do not seem to live as long as Americans. There are no vital statistics, birth or death certificates, and so to speak statistically it is impossible to determine their ages. I would guess the average age of longevity would be similar to the times of Roman History, 28 years or so, due largely to high infant mortality. It is a common experience for a woman to give a history of having had ten or twelve children with only two or three living.

Heart Disease, especially rheumatic heart disease, is frequently seen. The cases are generally advanced and present themselves because of palpitation, dyspnea, or edema. The hearts are very large, and often combined mitral and aortic lesions are present. Several early cases of active rheumatic carditis have been in our hospital and responded well to salicylates. In all, the typical histories of previous sore throats and polyarthritis were present. In spite of the marked prevalence of syphilis, little Syphilitic heart disease has been seen. Kahn tests are done routinely on about 80 per cent of the patients, and it seems over 50 per cent of the tests are either 1+, 2+, 3+, or 4+. A challenge for research on this problem presents itself, as I am sure a great many are false positives in view of the great prevalence of malaria, amoebic hepatitis, kalazar, or many other tropical diseases capable of producing a false positive. Several cases of Congenital heart disease have been seen. For example one patent ductus arteriosus and one presumably a Tetralogy of Fallot contemplate going to India for surgery.

A great deal of cardiac neurosis is seen. Extrasystoles cause much alarm. One twenty year old boy felt he was completely invalided and wondered if he could continue his studies. Because of language difficulties and their fixation complex when some doctor has unduly frightened them we generally write or personally explain to one of the local physicians who in turn explains the situation and convinces the patient he is not an invalid. I was asked to see one sixteen year old boy in the home. Two men had to hold him up for he could not breathe. He had received Coramine, digitalis, and penicillin for his 4+ Wasserman. This patient was a typical case of neurocirculatory asthenia, and it took six weeks of hospitalization to reeducate, reassure, and rehabilitate him. He had been on absolute bedrest for sixteen months.

Hypertension is uncommon. The average blood pressure seems to be 20 to 30 mm. of mercury lower than in America, 80 - 100

(Continued in March Issue)

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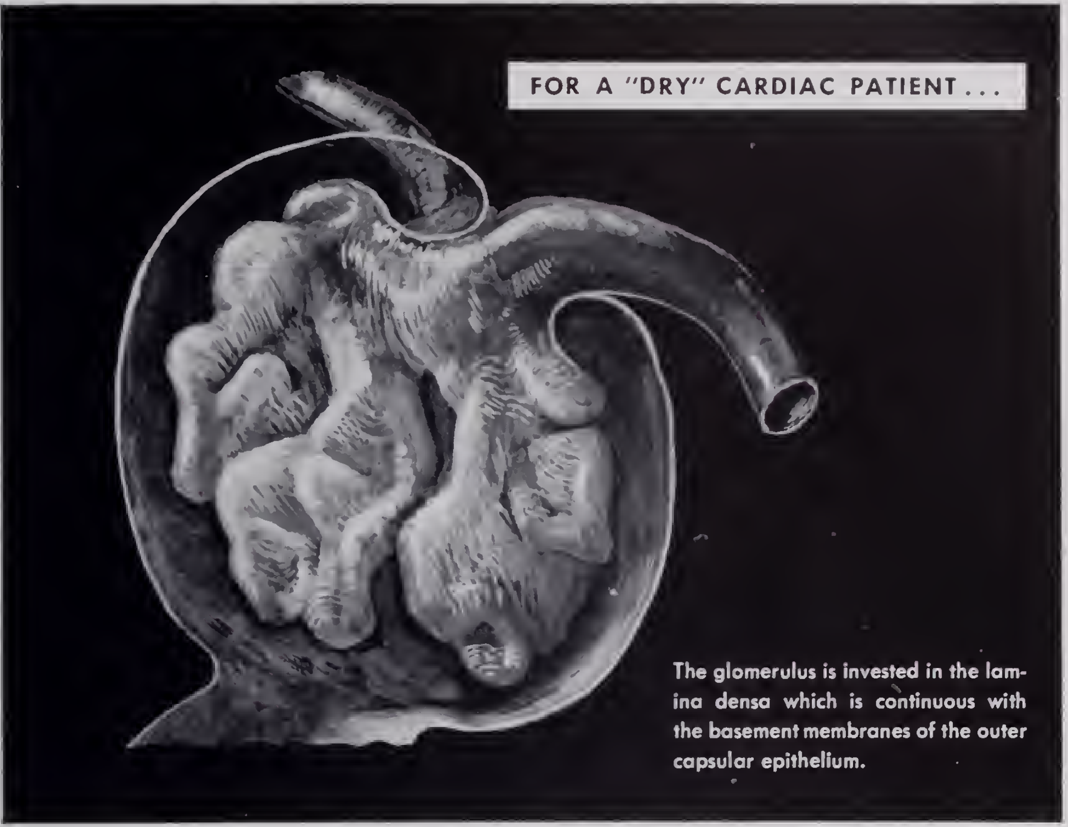
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2. Settel, E.: A Clinical Evaluation of a New Oral Diuretic, Rolicton, Postgrad. Med., Feb. 1957, in press.
3. Goldner, M. G.: Personal communication, June 29, 1956.

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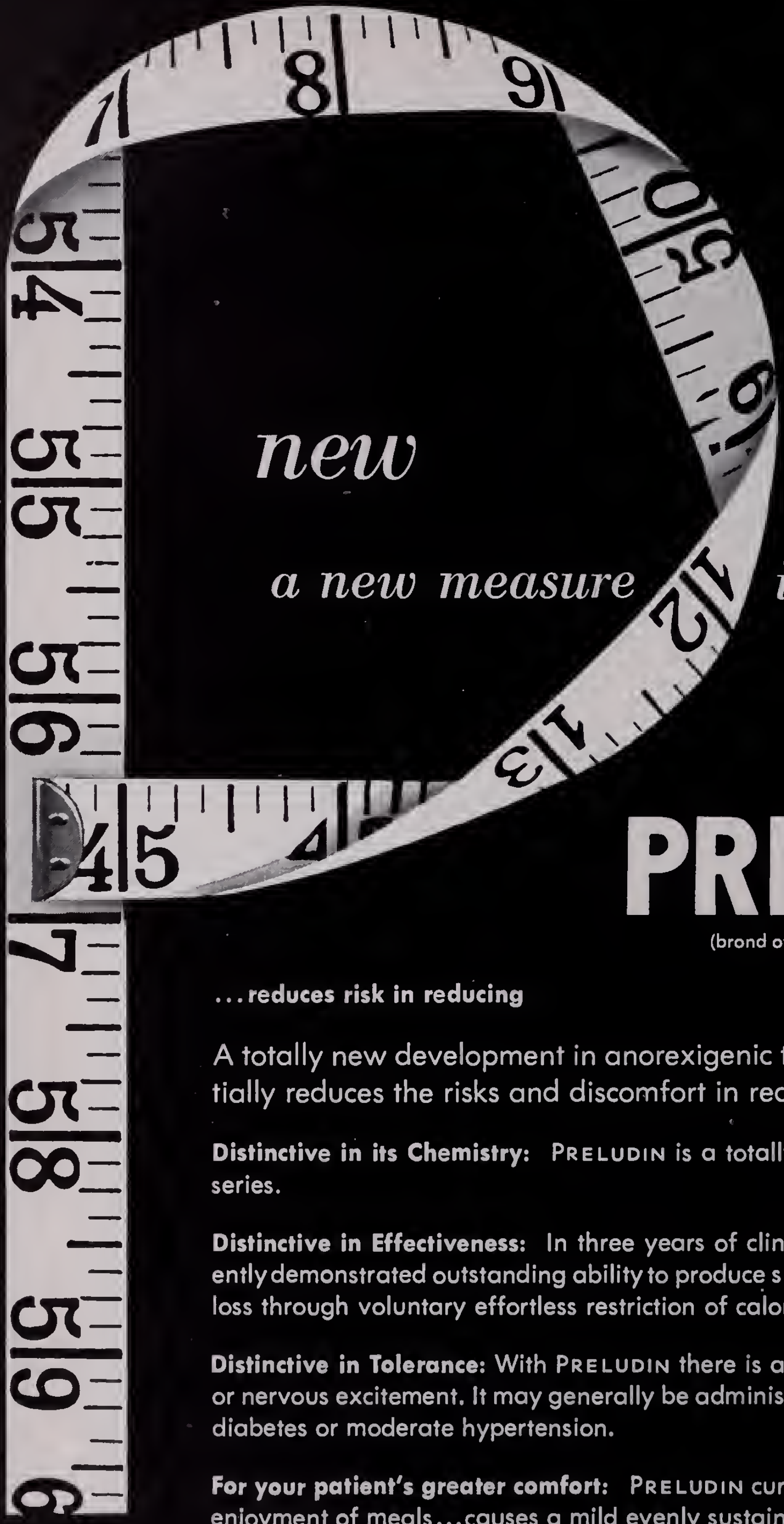

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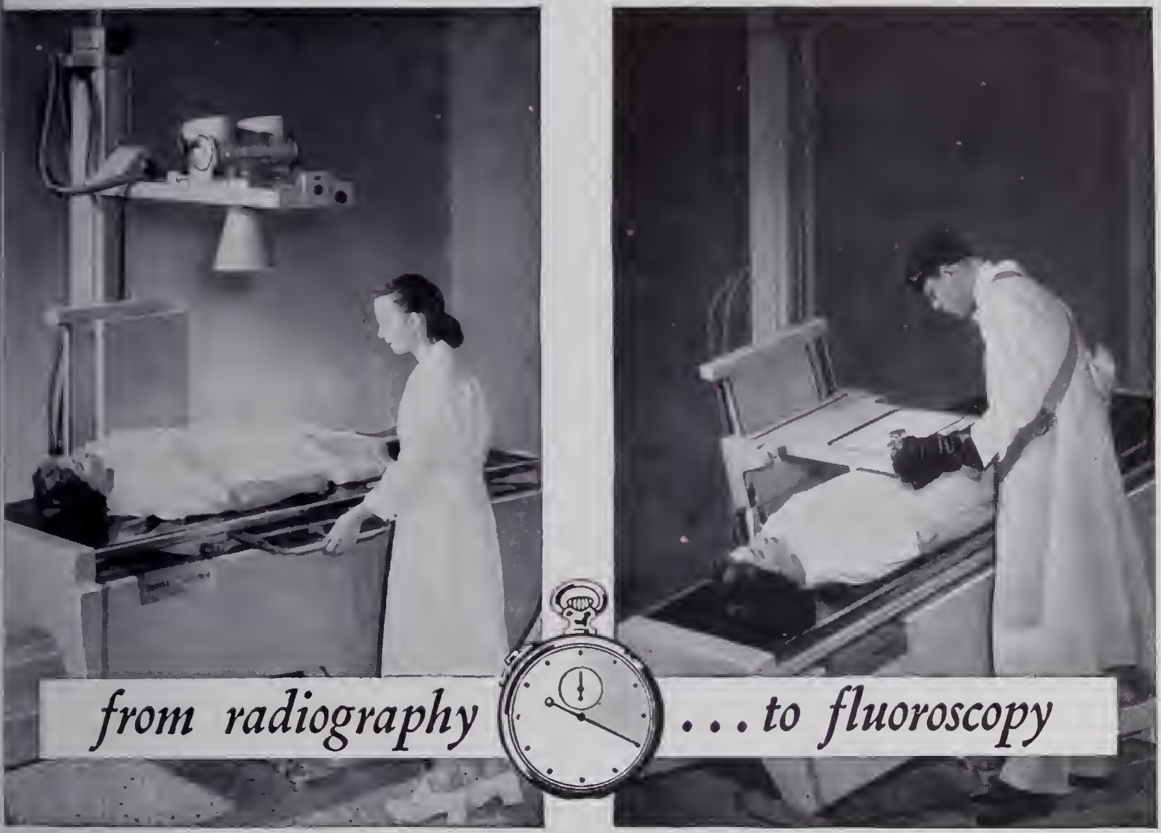

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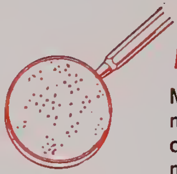

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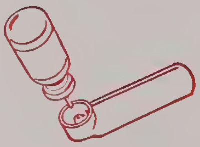

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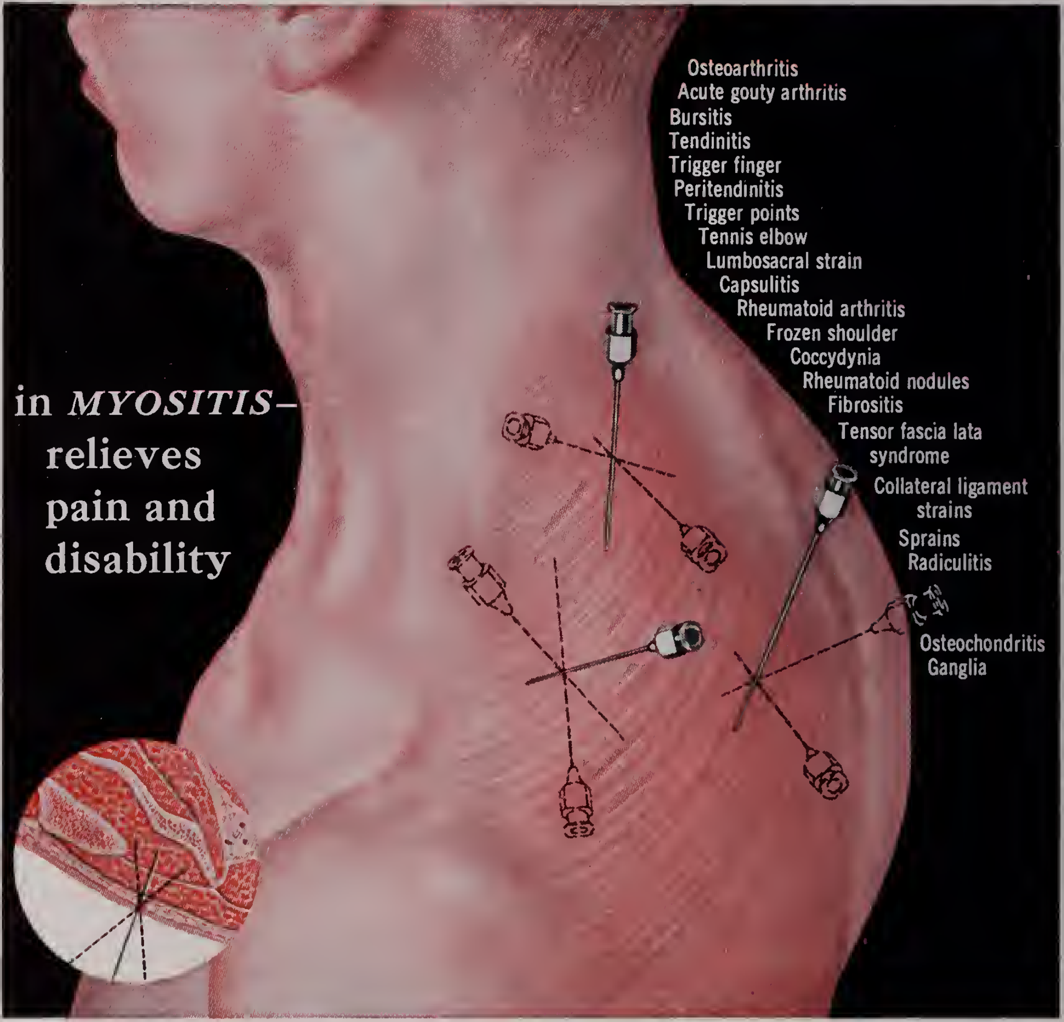

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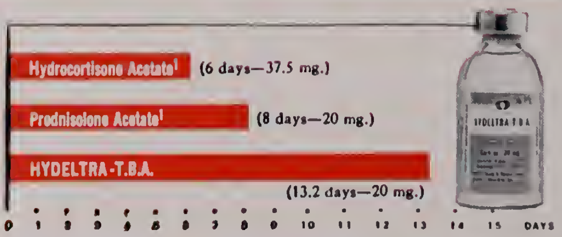

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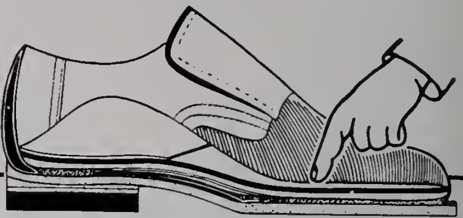

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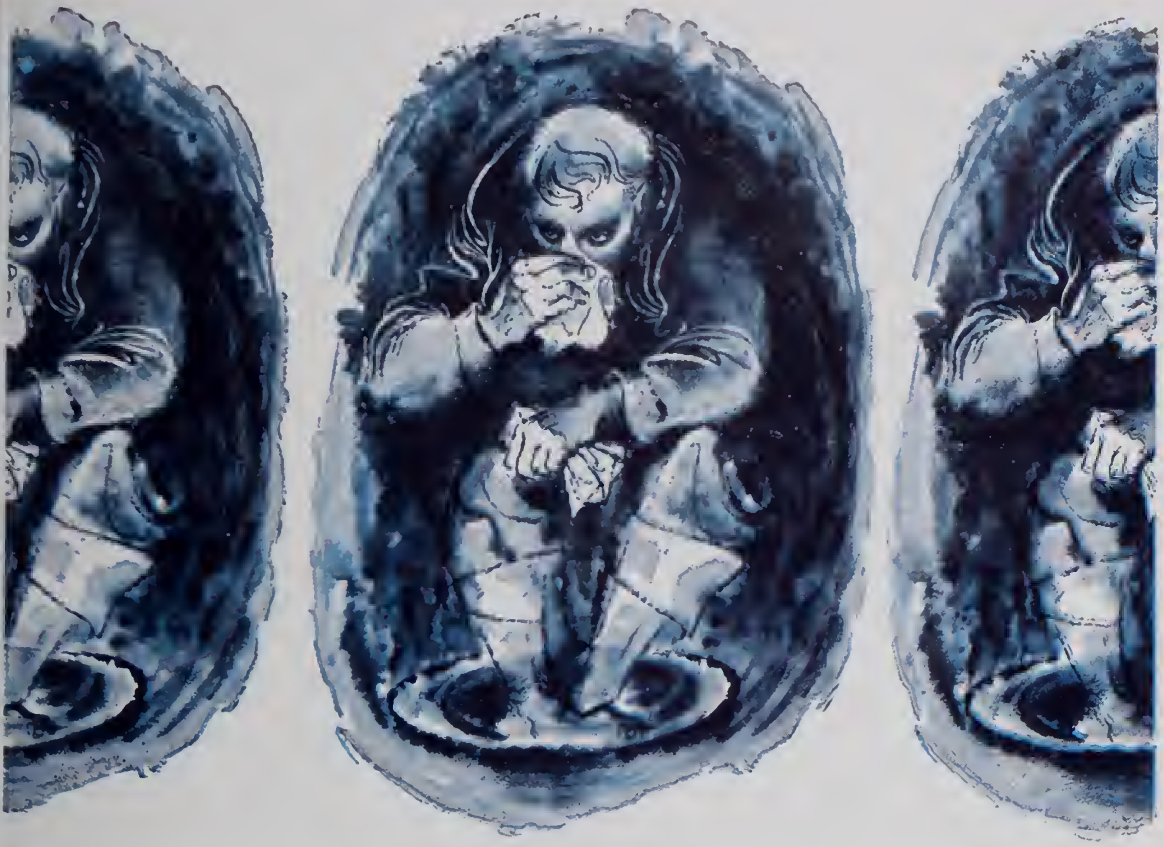

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[1] The Food Exchange Lists referred to are based on material in "Meal Planning with Exchange Lists" prepared by Committees of the American Diabetes Association, Inc., and The American Dietetic Association in cooperation with the Chronic Disease Program, Public Health Service, Department of Health, Education and Welfare.

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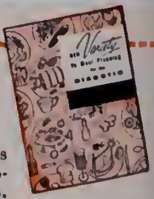

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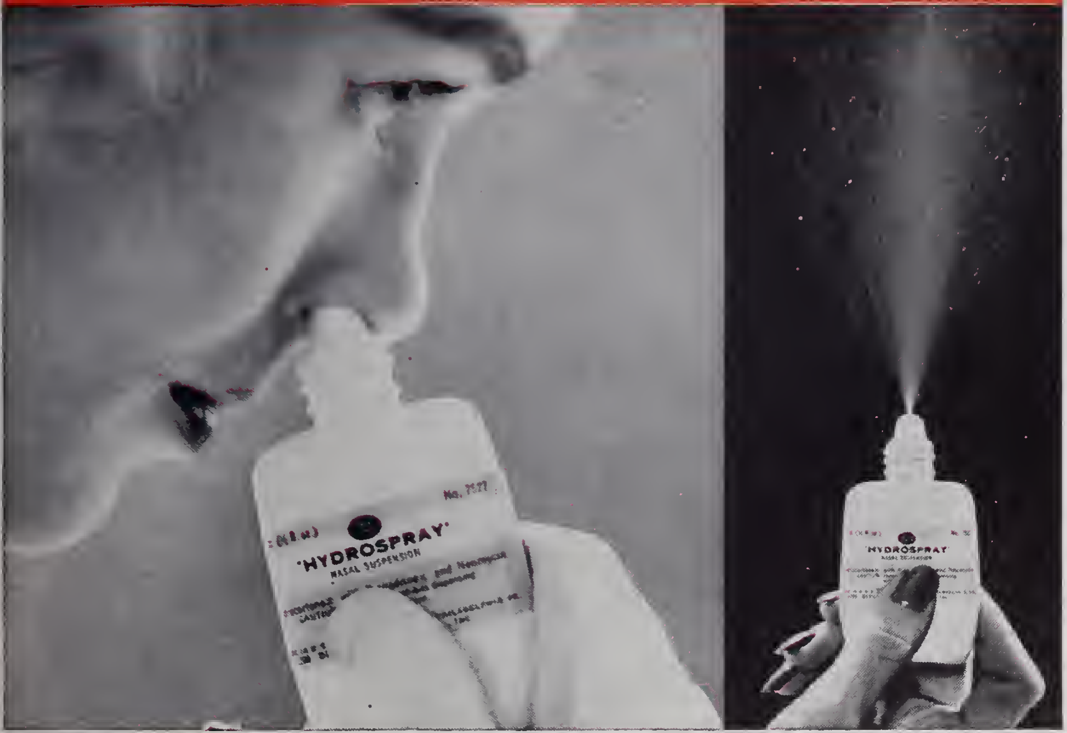

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*Official Organ of the Medical Society of Delaware*
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VOLUME 29 MARCH, 1957 NUMBER 3

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INTESTINAL OBSTRUCTION AND BLEEDING

Complete Contents on Page iv

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## REFERENCES

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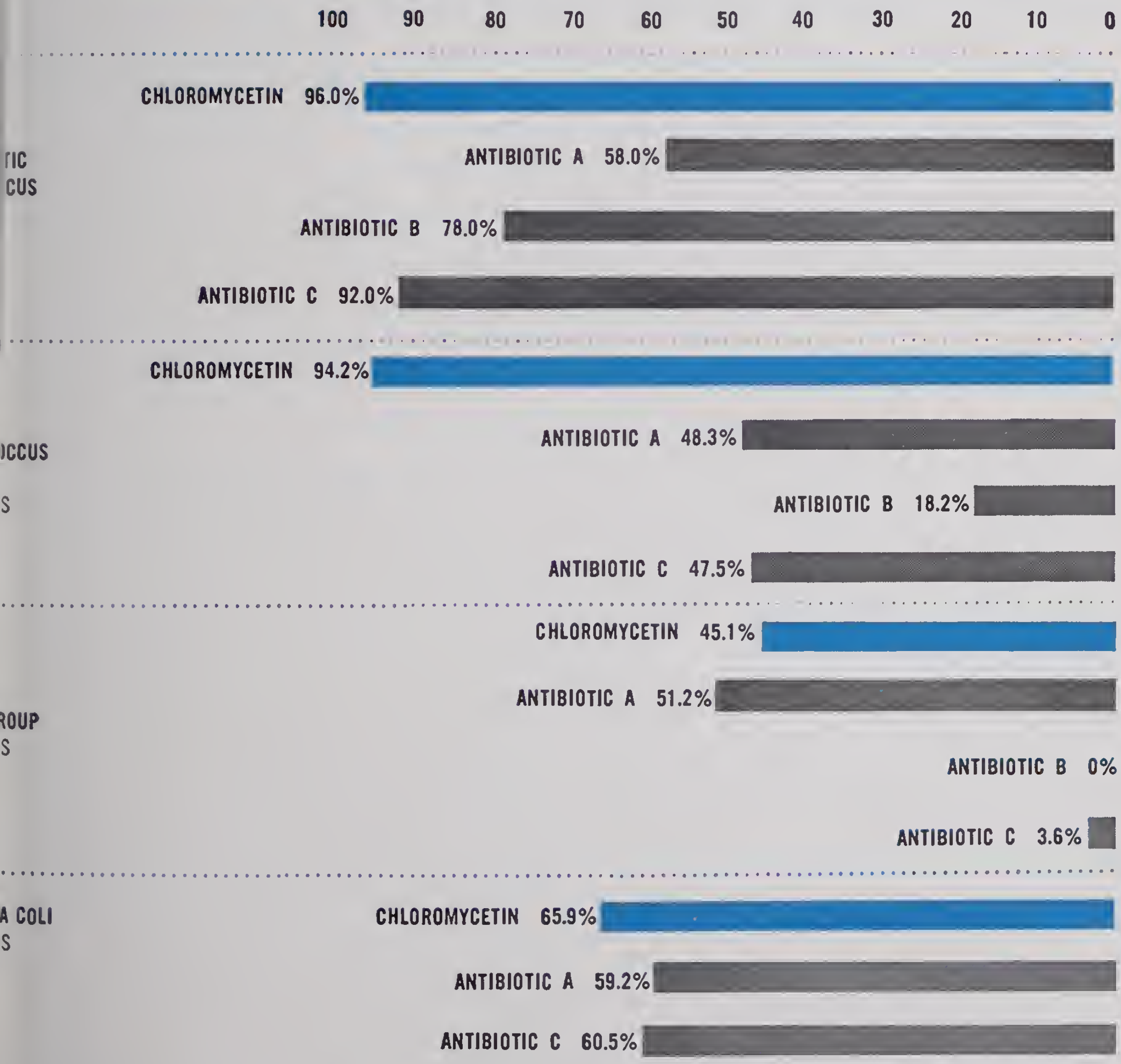

*This graph is adapted from Rantz and Rantz.[4] It is based on *in vitro* studies of bacteria freshly isolated from clinical materials.

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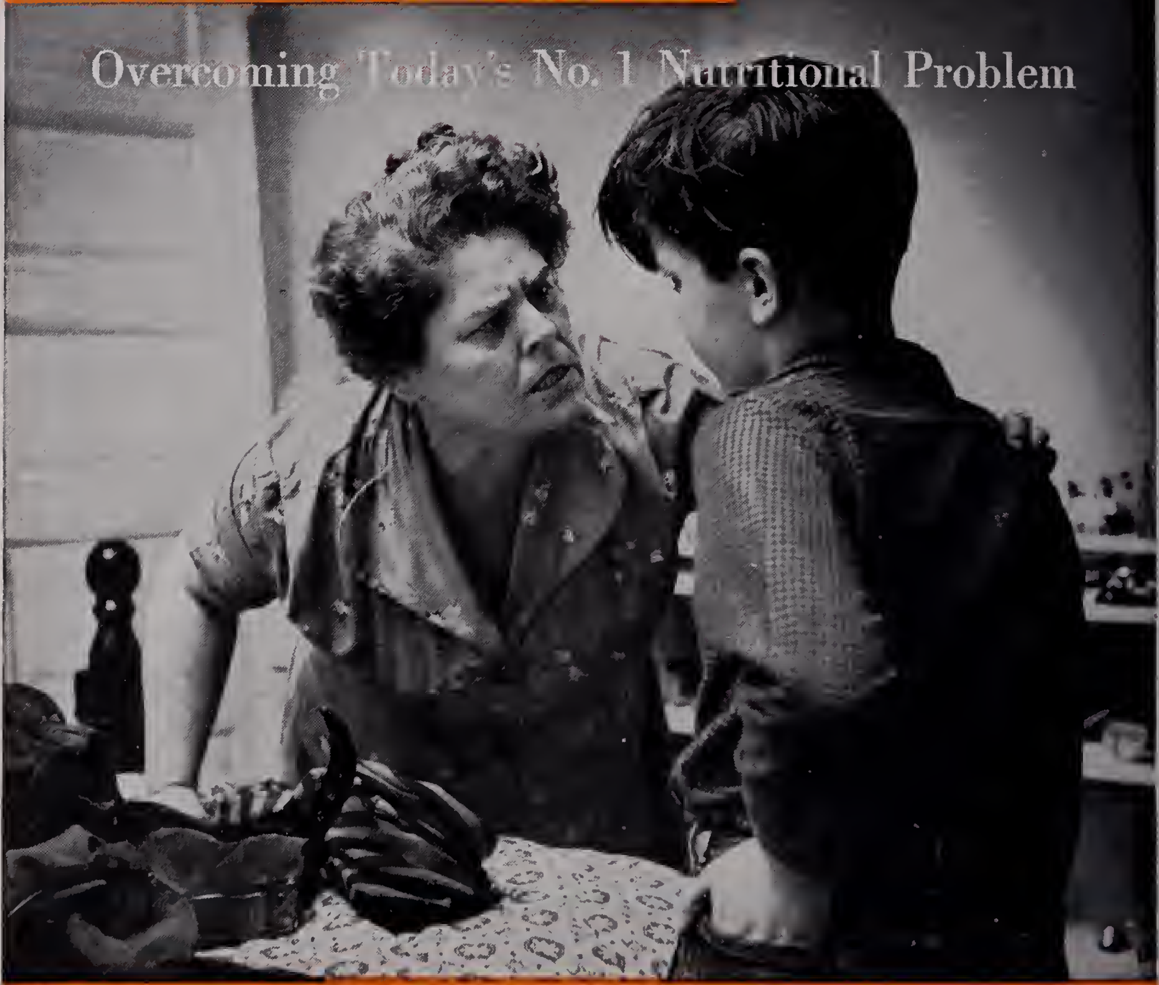

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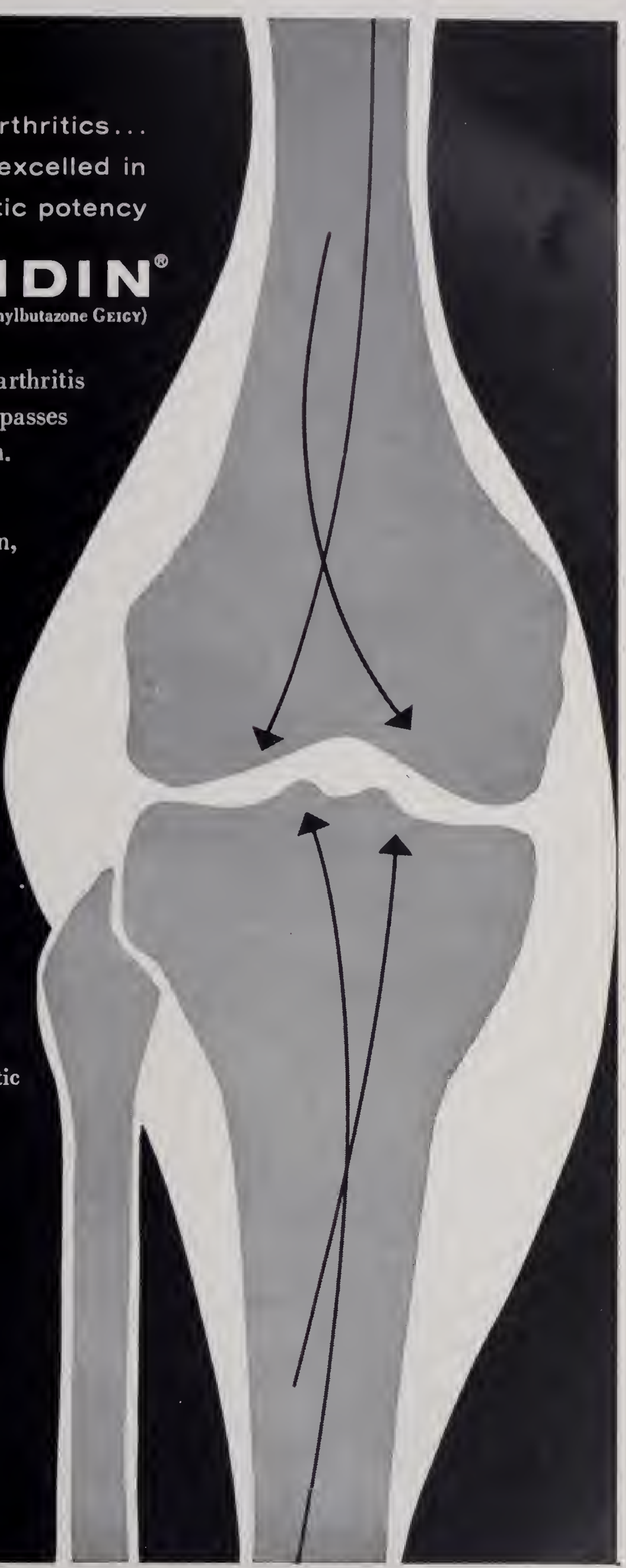

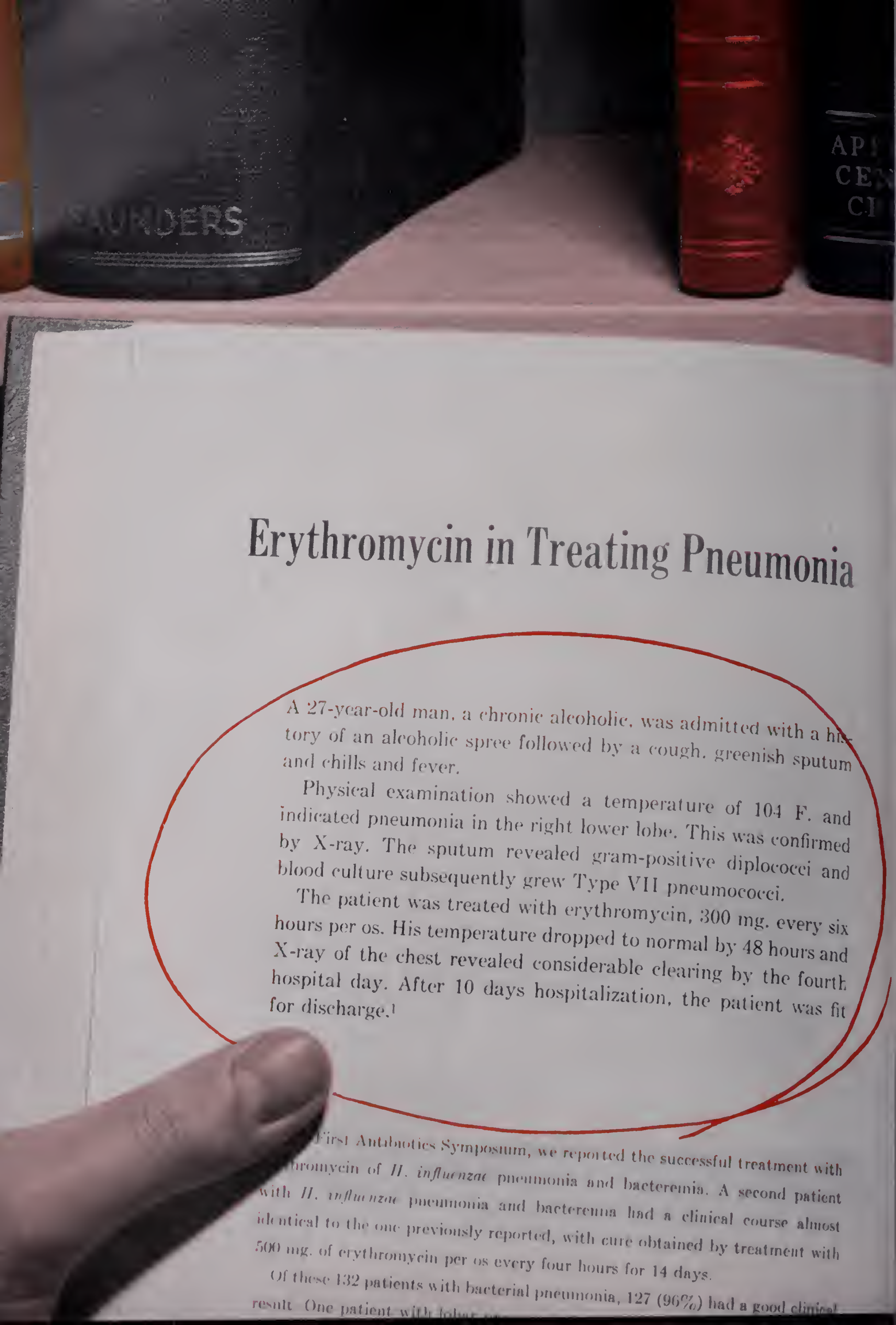

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Physical examination showed a temperature of 104 F. and indicated pneumonia in the right lower lobe. This was confirmed by X-ray. The sputum revealed gram-positive diplococci and blood culture subsequently grew Type VII pneumococci.

The patient was treated with erythromycin, 300 mg. every six hours per os. His temperature dropped to normal by 48 hours and X-ray of the chest revealed considerable clearing by the fourth hospital day. After 10 days hospitalization, the patient was fit for discharge.[1]

First Antibiotics Symposium, we reported the successful treatment with hromycin of *H. influenzae* pneumonia and bacteremia. A second patient with *H. influenzae* pneumonia and bacteremia had a clinical course almost identical to the one previously reported, with cure obtained by treatment with 500 mg. of erythromycin per os every four hours for 14 days.

Of these 132 patients with bacterial pneumonia, 127 (96%) had a good clinical result. One patient with lobar

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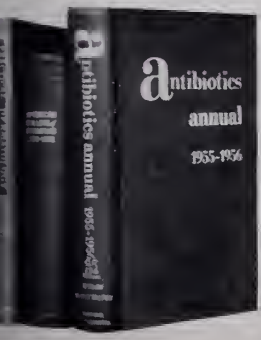

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## HARD-TO-KILL TRICHOMONADS

# EXPLODE

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WITH THE Davis technique,† using VAGISEC® liquid and jelly, flare-ups of vaginal trichomoniasis rarely occur. VAGISEC liquid actually explodes trichomonads within 15 seconds after douche contact.[1] Better than 90 per cent apparent cures follow use of this new trichomonacide,[2] developed as "Carlendacide" by Dr. Carl Henry Davis, noted gynecologist and author, and C. G. Grand, research physiologist.[3]

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*Reaches hidden trichomonads*—Unlike many agents, VAGISEC liquid thoroughly penetrates and dissolves the cellular debris and mucoid material lining the vaginal surface.[3] It reaches hidden trichomonads — often the cause of treatment failure — as well as parasites swimming freely in the canal.

*The Davis technique*—Office therapy with VAGISEC liquid is combined with home treatment. Both liquid and jelly are prescribed.

> OFFICE TREATMENT—*Wipe vaginal walls dry with cotton balls, then wash thoroughly for about three minutes with a 1:100 dilution of* VAGISEC *liquid. Remove excess fluid with cotton balls. Dr. Davis recommends three treatments the first week, two the second and one the third.*
>
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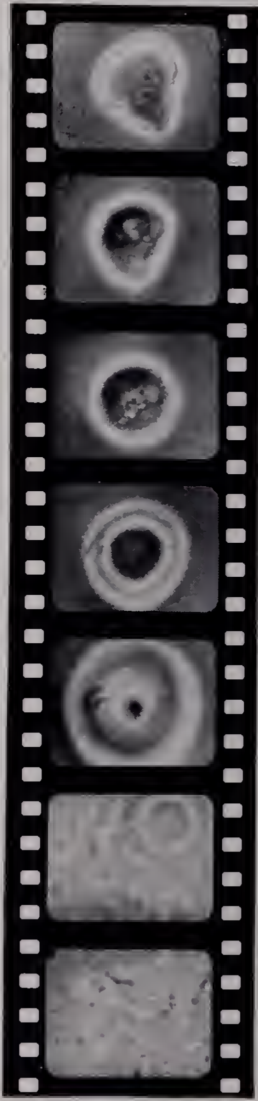

*Top to bottom:*
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4 sec. COMPLEXES
6 sec. DISSOLVES
8 sec. DENATURES
10 sec. SWELLS
15 sec. EXPLODES
16 sec. SCATTERS

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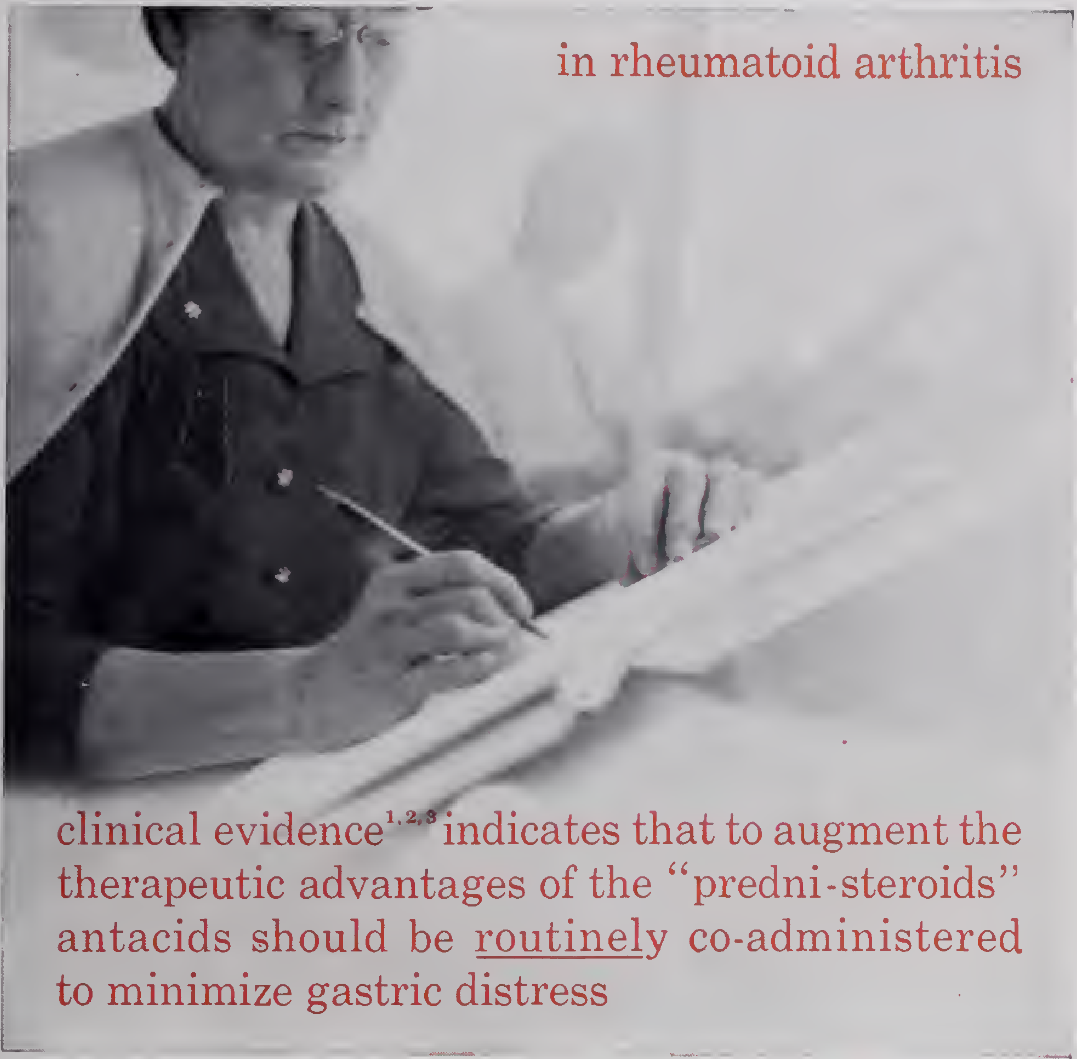
*References:* 1. Davis, C. H.: J.A.M.A. 157:126 (Jan. 8) 1955. 2. Davis, C. H.: West. J. Surg. 63:53 (Feb.) 1955. 3. Davis, C. H., and Grand, C. G.: Am. J. Obst. & Gynec. 68:559 (Aug.) 1954. 4. Davis, C. H. (Ed.): Gynecology and Obstetrics (revision), Hagerstown, Md., W. F. Prior, 1955, vol. 3, chap. 7, pp. 23-33. 5. Draper, J. W.: Internal. Rec. Med. 168:563 (Sept.) 1955.



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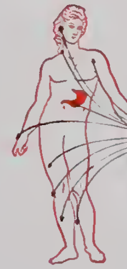

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*References:* 1. Boland, E. W., *J.A.M.A.* 160:613 (February 25) 1956. 2. Margolis, H. M. *et al., J.A.M.A.* 158:454 (June 11) 1955. 3. Bollet, A. J. *et al., J.A.M.A.* 158:459 (June 11) 1955.

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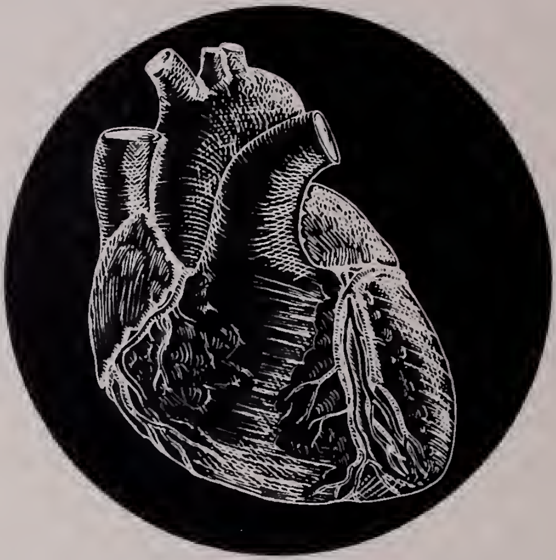

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# DEFORMITIES CAN BE PREVENTED

FREDERICK E. DUGDALE, M.D.C.M.*

One of the changes brought about by growth and development in medical knowledge is an increase in the length of the human life span. Because of a longer life expectancy and advance in technological skill, additional problems are created. Machines are the sources of increased crippling disabilities, and chronic diseases are causes of physical disabilities in an aging population.

The general practitioner is the first to see, recognize, and treat many of the chronic diseases. Therefore, my purpose is to point out some preventable after effects of chronic diseases and to discuss procedures by which the family can assist in their prevention. All but the most serious patients should be treated in the home as many elderly persons are easily projected into a psychotic state by institutionalization. The family and physician have available in the community a valuable ally to assist them in many of these procedures. She is the visiting nurse.

A common affliction of the older age group (and frequently of younger individuals also) is the cerebral vascular accident. Among the residual disabilities of the hemiplegic patient are the painful "frozen shoulder" and the flexion contractures of the upper extremity. These conditions may be prevented in most cases with ten minutes of daily attention.

Early consideration must be given to the bed position of patients for the period of acute shock. A comfortable position may be obtained by placing a pillow in the axilla of the affected side with the arm across it so that the shoulder is fully abducted to 90°. The forearm should lie across the pillow, the elbow flexed 90° and the arm internally rotated, the palm flat and the fingers fully extended. On four occasions daily the hand and forearm should be picked up and the arm fully externally rotated. The palm will be facing up. The procedure should be reversed to return the arm to the original position. If this maneuver is repeated from six to eight times on each occasion it will keep a shoulder free and "frozen shoulder" can be prevented. At the same time it is easy to flex and extend the elbow fully and to move the fingers through a full range of motion.

The affected lower extremity should be braced by a small pillow on the lateral side beneath the greater trochanter to prevent external rotation of the leg and foot. A few minutes spent three or four times daily to flex the thigh on the abdomen and the knee on the thigh six or eight times will maintain joint motion in this extremity. If the patient can at any time voluntarily lift the heel from the bed with the leg straight, he should be able to walk.

Barring complicating factors of cardiac or other disease, prolonged bed rest is to be deplored in the treatment of the hemiplegic patient. Active treatment and ambulation should be started as soon as the period of acute shock has passed. The incontinence of bowel and bladder should respond rapidly and without further attention to early ambulation. It will assist further in the maintenance of protein metabolism, with calcium and phosphorous balance, to prevent muscle wasting, urinary calculi, and osteoporosis. The threat and consequences of decubiti also are avoided.

One of the greatest crippling diseases is rheumatoid arthritis. It frequently leaves the patient deformed due to preventable flexion contractures. The patient soon learns that the pain in his knee is eased by placing a pillow beneath the joint. This malposition brings about knee flexion contractures. The hip flexors shorten, producing a combined knee-hip flexion contracture. Ambulation with such position is impossible. In fact, attempted ambulation under such circumstances further aggrevates the problem of walking.

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* Chief Physical Medicine and Rehabilitation Service, Veterans Administration Hospital, Wilmington.

Other symptoms of the arthritic patient are upper extremity deformities: the "tight" shoulder, flexed elbow, wrist and hand deformities with the fingers flexed, subluxed and ulnar deviated. Back weakness may occur if the spine is involved. Therefore, the combination of poor positioning, muscular weakness and atrophy, result in deformities. A patient in this condition requires long term physical restorative procedures, and the end results may leave much to be desired.

For the general practitioner to outline a routine for the arthritic patient takes perhaps ten to fifteen minutes; but the family, by following these simple instructions can save a patient much time, financial loss, and suffering.

To help prevent such consequences some simple measures are suggested. A board should be placed beneath the mattress. The head and shoulders should not be raised on pillows to flex the upper spine. Proper alignment of the joints in the acute stage of the disease insures functional body mechanics when activity is feasible. The upper extremity should be placed to avoid the malpositions previously described. With the upper, as with the lower extremity, half-shell, padded plaster splints are an aid. The limbs should be removed from such casts three or four times daily, and all joints should be put through a full range of motion within the limits of pain. Analgesics before such motion makes the program easier for both the patient and his attendant.

"Muscle setting" should be done hourly by the patient when awake. This simple maneuver prevents or slows muscle atrophy and weakness, and improves the circulation of the involved periarticular structures and musculature. The patient is instructed to contract specific muscle groups, without joint motion, and to hold the contracture from five to ten seconds before relaxing it.

The lower extremities must be kept in extension when not being exercised. I prefer the previously mentioned padded plaster shell from mid-thigh to beyond the toes, with the foot at right angles for prevention of heel cord shortening and foot deformities. A pillow doubled and placed against a foot board in the bed can be used also to give added support to the feet.

Most deformities seen in arthritic patients, with the possible exception of those of the hand, are due to extensor weakness. The extensors are stretched and weakened and the flexors are allowed to shorten and contract. Therefore, the proper body positioning and maintenance of joint range of motion are basic principles in the treatment of arthritic and hemiplegic patients. Unless the physician keeps them in mind, an otherwise sound medical program may fail.

In the discussion on arthritis the use of a pillow under the knee was condemned. The same principle applies to patients with diabetes, arteriosclerosis, or other peripheral vascular diseases. The same knee and hip flexion contractures may be intiated. If gangrene follows, requiring amputation, postoperative progress may be impaired. The use of pillows under a stump for more than 24 hours invites a flexion contracture which complicates the satisfactory adaptation to a prosthesis. When amputation becomes inevitable the patient should be physically and psychologically conditioned for the postoperative course by ancillary assistance from the hospital's department of physical medicine to strengthen the upper extremities for crutch walking pre-and post-amputation. Early post-surgical stump exercise is indicated and will decrease pain and improve healing.

What physician would send his patient to a pharmacist with instructions to get some medication for a cold? Serious thought should also be given to the prescription of a prosthesis. A patient who has had a recent amputation is poorly prepared to be referred to a limb-maker without a specific prosthetic prescription. Few amputees are capable of adequate adjustment to and use of a prosthesis without some instructive assistance. If the physician is too busy to undertake the supervision of such a program he should assist the patient to obtain the necessary training.

With the increasing aging population more crippling disabilities can be anticipated. Some conditions which can be prevented have been presented.

With the knowledge, tools, and technics at our disposal, many permanent disabilities can be either minimized or wholly avoided. Granting the apparent inevitability of varying degrees of crippling due to the nature of the basic pathology, we must recognize the frequency of superimposed secondary pathologic changes that can be avoided by the meticulous observance of intelligently planned preventive measures. The statement by Hippocrates, "Do your patient no harm," has greater implication today than when it was made.

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# INTESTINAL OBSTRUCTION

DONALD G. MCHALE, M.D.*

A definite decrease in the mortality rate of patients treated for intestinal obstruction has been noted in the past several decades. This improvement in treatment testifies to the effort, experimental work, time, study and consideration given to it by numerous investigators. A working knowledge of the physiological, pathological and biochemical aspects of this problem is essential if one is to treat these cases on anything other than an empirical basis.

Late cases of intestinal obstruction that have been successfully treated by the "suction method" (i.e. Miller-Abbott, Levine and Cantor tubes, etc.) have shown that "fatal toxemia" is not of necessity a constant accompaniment of a high grade obstruction of the intestine. The success of suction treatment also favors the mechanistic and bacterial explanations of the cause of death. This theory is that death is due to the loss of viability of the gut wall and subsequent permeation of bacteria and other products. It appears that the utilization of the Cantor and Miller-Abbott tubes have relegated the "toxemic effect" to the end of the process in causing its added lethal effects.

Perhaps the simplist way to consider intestinal obstruction is to use a pathological classification which divides all obstructions into:

I. SIMPLE OBSTRUCTION in which the continuity of the bowel alone is blocked and where there is no primary vascular disturbance; e.g., adhesive bands. Further subdivision could be incomplete and complete. Two entities, due to nervous inbalance, may be included in simple obstruction; viz., paralytic or inhibition obstruction and spastic or dynamic obstruction.

II. STRANGULATED OBSTRUCTION where, in addition to blocking in bowel continuity, the blood supply of the bowel is compromised.

Previous to any changes caused by obstruction, the bowel has a certain normal enteric pressure with a variable amount of gas, fluid and/or solids. Gases commonly present in intestinal meteorism are nitrogen 75%, oxygen, carbon dioxide, hydrogen, methane and hydrogen sulfide. The proportions are subject to considerable variation. Swallowed air in obstruction represents about 68%; about 22% are gases diffused from the blood, especially nitrogen, and the remainder 10% are due to food fermentation.

The general sequence of events in a typical case of complete simple obstruction of the bowel can be fairly well depicted.

At first with obstruction there occurs an increase in the activity of the bowel. The exact mechanism of this is difficult to explain. With increasing distension and intraluminal pressure there is thinning of the bowel wall and decreased absorption from the intestinal lumen. As the intraluminal pressure increases the diameter of the gut is stretched, thereby jeopardizing first the capillary circulation then the venous and then the arterial channels.

With encroachment on the blood supply, loss of plasma follows injury and later even whole blood can escape. Then follows anoxia, infarction, necrosis and gangrene which allows migration of noxious bacteria and substances through the damaged bowel wall and ultimately transperitoneal absorption. The importance of the bacterial phase of toxicity in strangulating obstructions must be emphasized. In the small bowel a certain amount of decompression occurs by regurgitation of contents back into the stomach, usually with vomiting. In the large bowel either a closed loop occurs or there is regurgitation into the ileum and small bowel. The former happens when the ileocecal valve is competent which it is in about 60% of the cases.

Distension is probably the main factor in the advent of fluid and electrolyte loss into the "3rd compartment." It also hinders return venous flow and thereby lessens the general effective circulatory volume. Upward pressure on the diaphragms hinders respiration and pulmonary complications occur in proportion to the amount of mechanical and reflex interference.

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*Chief, Surgical Service, Veterans Administration Hospital, Wilmington.

## FLUID ALTERATIONS:

Various investigators have attempted to estimate the rate of digestive fluid "turnover" in 24 hours. This figure could involve 6½ liters or more. A fair proportion of our "mobile internal environment of intercellular fluid" can play a role in bowel obstruction. The loss of acid or base can be fairly well determined depending on whether the obstruction is "high" or "low." In recent years levels of Na, Ka and Cl can be followed and are an aid in our fluid electrolyte replacement program. Some writers stress the amount of blood loss which can occur, especially in strangulating types of obstruction and particularly where the venous obstruction factor predominates.

## SYMPTOMS AND DIAGNOSIS:

Having in mind the physiologic, pathologic and biochemical changes, we can consider the symptoms and the diagnosis:

Early in the course of obstruction the patient may not appear to be sick. Pain, as in all abdominal conditions, is of paramount importance. Pain associated with noisy peristalsis should immediately raise the question of intestinal obstruction. Once the suspicion of intestinal obstruction arises, x-rays usually furnish the remaining information. At times the scout film can solve the entire problem. On other occasions, all that can be told is that there is obstruction. We do not use cleansing enemas either as treatment or as a diagnostic maneuver. The barium enema often makes the definite diagnosis.

Palpation of the abdomen may reveal tenderness, peritoneal irritability, its point of maximum intensity and perhaps a mass. This applies usually to the case of strangulated intestine. Associated tachycardia, elevation of temperature and increasing white count (even after restoration of fluid balance) are warnings to delay operation no longer. One of the more difficult diagnostic problems is to differentiate a strangulated bowel from an inflammatory condition complicated by a simple obstruction. Preliminary Cantor tube suction may help solve this situation. I suspect that the early operator has been surprised on occasion at the pathology unearthed by the laparotomy. One recent case of ours seemed quite typical of acute, simple, intestinal obstruction. Preliminary suction was started and laparotomy performed. Many loops of small bowel and the colon were quite severely distended but no obstructive lesion was found. Pancreatic, biliary, renal and other reflex mechanism, we thought, had been ruled out. A trivial back strain was the only event that could be unearthed on repeated close questioning. This had occurred several days previous to what was interpreted as the onset of the patient's complaints and illness. It seemed unlikely to be the etiological factor. If this was a case of reflex ileus it was an unusual one. He recovered uneventfully. One does not often encounter such a situation.

The fundamental concept in treatment is the release of the causative agent before the necessity arises of having to deal with nonviable bowel.

The necessity of restoring fluid-electrolyte balance preoperatively is essential. Preoperative restoration to as nearly normal balance is the goal. This includes blood, plasma, vitamins, amino-acids, in addition to the water, salt, potassium and other electrolytes available today. In addition, early administration of antibiotics is customary.

Concomittantly, intestinal decompression is started. We have not been successful in getting the balloon of the suction tube, whatever the type, past the pylorus in many of the late, distended cases. Cecostomy, or proximal transverse colon colostomy, as early as feasible has been used in the acute colonic obstruction with a closed loop effect.

Prolonged small bowel intubation may appreciably delay progression of the obstructive phenomena even with persistence of the causative agent. In some patients it was necessary to delay operation until well into the second week. These patients showed no ill effects of the delay.

We have seen most of the complications arising from the use of decompression tubes. No critical problems were caused by knotting of the tube in the stomach, spillage of mercury or rupture of the balloon. At times when it has been impossible to pass the tube further into the small bowel we have instilled 10 to 30 cc. of lipiodol or thin barium sulphate solution into the tube in an attempt to delineate the obstacle. These maneuvers probably added little toward arriving at a diagnosis.

An adequate vertical incision is usually used at operation. The presence of sanguineous peritoneal fluid is evidence of strangulation. In large bowel obstruction the most distal portion of the colon that appears distended on the x-ray film should be examined. In small bowel obstruction a dilated loop of bowel frequently will present itself. Following the bowel in the direction that presents itself least readily may lead to the obstruction. Usually the small bowel distal to the occlusion will be collapsed. Despite the various suggestions as to bowel recognition (Monk's Localization and Wilms' Suggestions) we have frequently had to find the ileocecal juncture and then trace back the small bowel toward the jejunum. Wangensteen's suggestion of aseptic intestinal decompression by trocar and covering a F-30 rectal tube with a lubricated-on-the-inside Penrose drain has been used with some satisfaction in diminishing soilage. We have not had many cases lending themselves to irrigation with neomycin solutions at time of operation and have no opinion as to its possible value. On several occasions it seemed vital to manually thread the mercury filled balloon down through distended loops, decompressing them en route. This has been performed in association with enterotomy. While soilage was kept to a minimum, the handling of the distended bowel was considerable and would seem too injurious except in certain critical situations. In certain areas where serosa is stripped and dense adhesions must be separated from lengths of small intestine, plication both at the serosa and by suturing the mesentery has been found effective. This is especially valuable in the chronically recurring obstructions of patients previously subjected to multiple abdominal operations.

In conclusion it appears that factors in improving the over-all mortality rate in intestinal obstruction are:

(1) Close attention to restoration of metabolic balance preoperatively.

(2) Adequate antibiotics. Their successful use in the last fifteen years have attested to the importance of the bacterial phase of toxicity in cases of strangulation obstruction.

(3) Limiting unsuccessful decompression to 24 hours.

(4) Earlier diagnosis and operation of strangulated obstructions.

# MANAGEMENT OF ACUTE GASTROINTESTINAL HEMORRHAGE

K. Sachs, M.D.*

Gastrointestinal hemorrhage constitutes a major medical emergency in which decisions based on sound medical judgment must be made promptly to prevent loss of life. The majority of patients who have bled from the gastrointestinal tract, especially those in the age group below 40, will recover regardless of the treatment employed. In a considerable number of cases, however, survival may be achieved only by the best of management. This includes personal observations at frequent intervals by the responsible physician.

History and physical examination, which always should include a rectal examination to verify the presence of melena, will usually result in a definite or presumptive diagnosis. Statistically, the bleeding results from peptic ulcer in about 70% of the cases from esophageal varices in 10 to 20% and less frequently from gastrointestinal tumors, hemorrhagic gastritis, blood dyscrasias, and other causes. Passage of a tube into the stomach, the old string test and/or a BSP test may help to determine the site bleeding. However, even in a case of well established Laennec's cirrhosis, the bleeding may still originate from a peptic ulcer or hemorrhagic gastritis. These conditions are found more frequently among cirrhotics than among the general population. The risk of an early x-ray examination of the stomach is a small one and well worth taking in cases where the bleeding is persisting and its origin has remained obscure. In at least 10% of the cases extensive clinical studies fail to find the cause of the bleeding.

## TRANSFUSIONS OF BLOOD

The replacement of blood to restore circulating blood volume is an established and essential part of therapy of gastrintestinal bleeding regardless of its origin. The fear that a transfusion of blood will raise the blood pressure and force out a clot is not based on facts except in cases of over-transfusion. In bleeding of short duration the red blood count or hemoglobin determination may not reflect the magnitude of the blood loss. Furthermore, vomiting and/or lack of fluid intake may cause dehydration and a deceptively high hemoglobin level. In cases of rapid blood loss the reduction of circulating blood volume is usually expressed by manifestations of circulatory insufficiency such as tachycardia, tachypnea, pallor, episodes of fainting and decrease of blood pressure. Such patients in whom the circulation is unadapted to the lessened blood volume may need blood very rapidly. Emergency transfusions with unmatched type "O" blood, plasma expanders, or saline solution may be necessary to prevent irreversible shock. Otherwise intravenous saline solution is rarely indicated except in the presence of prolonged vomiting and dehydration. The amount of blood and the speed with which it is given must be adequate to restore and maintain circulation. It is attempted to keep the pulse, blood pressure and respiration at a normal level. In the absence of shock it is preferable to give transfusions of blood at a slow rate to avoid rapid overloading of the circulation and possible undue increase of blood pressure. It is questionable if moderate lowering of the hemoglobin level without shock or syncope should be treated by transfusions but one certainly should not wait for shock to occur. Some writers[1] believe that a systolic blood pressure of 90-100 or lower or a hemoglobin of 70% (10.5 grams) or below are indications for blood transfusion. This is an over simplification and cannot replace clinical judgment. The incidence of homologous serum jaundice in transfusion is 2%. This is a serious complication with a high mortality rate. Other transfusion reactions are not uncommon. Therefore, transfusions should be used when indicated but never needlessly.

## BLEEDING FROM ESOPHAGEAL VARICES

Control of bleeding from esophageal varices by insertion of a Sengstaken or similar triple-lumen double-balloon tube should be attempted without delay. The swallowing of the tube may be facilitated by the simultaneous drinking of a few sips of water. After insertion of the tube the gastric balloon is inflated with 150-300cc of air. The tube is then partially withdrawn until resistance is felt as the balloon engages at the cardia. The method of taping the tube to the nose and face is not effective to maintain pressure at the gastric side of the cardia and a one pound traction should be applied to the tube by a string running over a pulley at the foot of the bed. Next, the esophageal balloon is inflated to a pressure of 20 to 30mm. of mercury which is usually sufficient to stop the bleeding. It is important that the pressure be maintained in both balloons as an insufficiently inflated upper balloon is worse than useless. Deflation of the lower balloon leads to regurgitation of the tube and obstruction of the airways with disastrous consequences. Pressure in the esophageal balloon can be maintained by a two bottle device working on hydrostatic principle.[2] Next the stomach is aspirated and emptied through the tube and, if there is no further evidence of bleeding, feeding through the same tube may be started. If the tube continues to yield blood after emptying of the stomach and in spite of proper placement and adequate pressure of the esophalgeal balloon, the patient obviously is bleeding from a source below the esophagus and other measures must be taken. Gradual deflation of the esophageal balloon should be attempted after 12 to 24 hours to forestall mediastinitis. Unfortunately, the bleeding frequently recurs following removal of the tube and an attempt may then be made to ligate the bleeding vein. This may be done through the esphagoscope or, more effectively, by way of thoracotomy. At a later time a more definite procedure to lower the increased portal pressure (one of the shunting procedures) may be indicated. The prognosis of those who withstand this procedure is far better than those who are managed conservatively.

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In addition to the above the management of a patient who had been bleeding from esophageal varices should be the same as that for a patient with peptic ulcer. One should attempt to neutralize the acid gastric juice by frequent feedings of milk keeping in mind the influence of gastric activity on the causation or recurrence of this type of bleeding.

## MANAGEMENT OF BLEEDING PEPTIC ULCER

The mortality is high, at least 10%, if operations are performed on all patients during the early stage of severe bleeding from peptic ulcers. The mortality is less than 1% if operation is delayed to an interval free of bleeding. On the other hand, if an operation is delayed in a patient with continuous bleeding and episodes of shock and anemia but eventually must be performed during active bleeding the average mortality is 25% or more. These figures, agreed upon by most authorities, clearly establish the doctrine that the initial management of patients with bleeding peptic ulcer should be medical. Those few patients who do not stop bleeding under such treatment should be recognized early and operated upon. This can be done only by close observation of the patient during the first 48 hours. This has been termed the period of decision. The decision for an operation should be made sooner in patients over 45 years of age in whom the more rigid arteries make a spontaneous cessation of the bleeding less likely. Recurrent bleeding under adequate medical treatment calls for the same measures as persistent bleeding.

Close cooperation of the internist and the surgeon is required especially during the initial period of decision. Nothing should be given by mouth as long as the patient is vomiting. Morphine should not be used. Strict bed rest and adequate sedation will usually control vomiting, nausea and restlessness. If hematemesis should continue it may be necessary to speed up the transfusion of blood and an early operation should be considered. Most authorities believe that intubation and gastric suction should not be used. The presence of the tube and suction stimulate the stomach to increased peristalsis which is undesirable and removal of the gastric juice may rapidly lead to fluid and electrolyte imbalance. It is occasionally difficult to determine whether the patient is continuing to bleed. Continued bleeding of significance will manifest itself by hematemesis, melena, or instability of the circulation as expressed by fall of blood pressure, increase of pulse rate, rate of respiration, pallor, increased perspiration or syncope. Therefore, close observation of the patient and interpretation of these vital signs by the physician are imperative. As indicated before, a tube may be inserted to obtain evidence for or against continued bleeding.

Physiologic reasoning and experience of groups in this country and abroad clearly indicate that treatment by starvation to "rest" the stomach leads to poor results and is therefore undesirable. As soon as nausea and vomiting have subsided feedings of milk, or milk and cream, should be started at hourly intervals in amounts of 2 ounces. If well tolerated these may be increased to 4 ounces after 12 to 24 hours. The results of this type of management seem to be superior to the immediate institution of a free feeding or Meulengracht type regimen. However, in a week or so after cessation of the bleeding it makes little difference if a Meulengracht diet or the more gradual increase of a modified Sippy regimen is used. I prefer the latter. *It is of greater importance that the neutralization of gastric acidity not be neglected at any time.* Milk is an excellent antacid. It is unnecessary in most cases that any other antacid be used while the patient is on hourly milk feedings. If, however, the patient is known to have gastric hypersecretion or if the ulcer pain persists after the hemorrhage, an antacid should be used. Calcium carbonate is preferred over one of the aluminum hydroxide preparations because the latter tend to cake when mixed with blood. Bed rest, sodium luminal and milk or antacid usually control the pain of peptic ulcer promptly and effectively. If pain should persist, pyloric obstruction or a penetrating ulcer with impending perforation should be suspected. In this event, which is not very common in bleeding ulcer, gastric aspiration or intermittent suction should be used and fluids and electrolytes lost must be properly compensated by parenteral replacement.

## USE OF DRUGS

The usefulness of sodium phenobarbital in the treatment of bleeding ulcer has already been mentioned. It may also be used in Laennec's cirrhosis since it is mainly excreted through the kidneys and there is no significant hepatotoxic effect. However, part of it is degraded in the liver and this phase is impaired in the presence of hepatic damage. Therefore the dosage should be lower and more widely spaced if this condition is present.

Morphine is contraindicated in bleeding peptic ulcer or in esophageal varices because it frequently causes nausea, vomiting, increase of gastric peristalsis, pylorospasm and it may mask an impending perforation. It also depends on the liver for its degradation. Demerol may be used in small amounts. Most authorities advise against the use of atropine in the early posthemorrhagic period because it increases the pulse rate. However, it may be useful to control pain due to increased peristalsis, spasm, nausea and vomiting. This drug or tincture of belladonna is traditionally employed in the treatment of peptic ulcer when bleeding is not a problem or several days after bleeding has stopped. Tincture of belladonna is effective only if used in adequate amounts which are just below the dosage which produces dryness of mouth and blurred vision. Other newer drugs, especially banthine, are useful but there is no evidence that they are in any way superior to atropine preparations.

Vitamin K should be used routinely in bleeding esophageal varices due to Laennec's cirrhosis. Other vitamins are indicated if there is a history or evidence of deficiency or malnutrition or if a prolonged maintenance on a much restricted diet is contemplated. They may be given parenterally during the early posthemorrhagic period.

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# BLOOD TRANSFUSIONS

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The use of blood transfusions has increased at such a rapid rate that we now take them for granted. The tremendous boon to mankind represented by the establishment of blood transfusions on a scientific basis cannot be denied. So great and rapid has been our acceptance of blood transfusions that there is a tendency to believe that the procedure is without hazard. This is not true. Furthermore, as blood is transfused on a wider scale with each passing year the inherent dangers may increase. I will discuss briefly the history of blood transfusions and point out where these hazards may arise both now and in the future.

Blood transfusions were attempted in ancient times but many reports are confused. There was no recognition of the closed circulatory system and consequently, in most of the old experiments, there is reason to believe that the blood was swallowed and not actually transfused into a blood vessel. Many magical and potent qualities were attributed to the blood of young people and animals and the ingestion of blood and later its actual transfusion were employed to combat the debility of age and the emaciation of chronic illness. Egyptian princes bathed in blood; in Rome the blood of dying gladiators was deemed particularly suitable for ingestion.

One of the earliest recorded efforts was in connection with Pope Innocent VIII in 1492. Three young men were used as donors and all succumbed, probably from exsanguination. It is believed that the blood was ingested and not transfused.

In the study of the circulation. Galen held the view of a venous blood flowing to and fro carrying nutritive substances from the liver and bowel and an arterial circulation carrying vital spirits and involving the lungs. Michael Servetus in 1953 pointed out the true nature of the pulmonary circulation, but his early death prevented him from completing the picture. Caesalpinus, around 1590, explained the function of the heart as a pump and its method of filling and emptying. Hieronymus Fabricus focussed attention on the valves in the veins, but failed to appreciate their true function. However, his student William Harvey had these facts before him. Prior to Harvey's precise and admirable description of the circulation, Andreas Libavius of Halle in 1615 described a system of direct transfusion which sounds almost modern. In his description he connected artery to artery by a system of tubes. Whether he ever did this and whether he tried to use arteries in both donor and recipient is not known. It seems more likely he was just theorizing, but he recognized a circulatory system and the necessity for delivering the blood into the vessels. It was just one year later, in 1616, that Harvey described the circulation of the blood.

Who performed the first true blood transfusion from human donor to human recipient remains a matter of doubt. Francisco Folli of Florence claims to have done so in 1654, using a system of cannulas. Christopher Wren and Richard Lower did many experiments transfusing dogs and transfusing animal blood into humans. They may have transfused human blood. Jean Baptist Dennis transfused a man who was near exsanguination from venesection with sheep's blood and he recovered. This was in 1667 and he may have performed other transfusions using human donors. Like many medical discoveries, numerous experimenters were trying to solve the same problems. Within a relatively short period, blood transfusions assumed great popularity and were given a wide trial. The results were disastrous. Infection, air embolism and transfusion reactions, due to improper blood types, resulted in fatalities. It followed that in Rome and France the procedure became illegal and in England it was frowned upon by the Royal Society. For 150 years this was the situation until

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James Blundell, an English obstetrician, used blood transfusions in an effort to overcome the fatalities due to postpartum hemorrhage. He withdrew blood by syringe from a vein to a container from which it was pumped into the recipient by means of another syringe. Again, infection, air embolism, incompatability reactions, the clotting of blood in syringes, and phlebitis were major complications.

The clotting of blood was a problem from the beginning. Bischoff employed defribination of the blood as a means of producing a fluid that would not coagulate and both Larsen and Martin reported successful transfusions using this technic. In addition, artery to vein and vein to vein methods of transfusion continued to be tried with the same unfortunate results, so by 1880 intravenous saline solutions had largely replaced efforts at blood transfusion.

Meanwhile, in the sixteenth century, the Jesuit, Father Kircher, laid the foundation for our modern theories of bacterial infection and Leeuwenhoek, a Dutchman, invented the microscope. Others described the cellular structure of living things and a slow progress was being made which reached its zenith in the discoveries of Louis Pasteur who, by 1880, had made clear the connections between bacteria and disease. The contributors from this point onwards, insofar as infection is concerned, were too numerous to mention. The time was coming when infection of a blood recipient either as a result of failure to use aseptic technic or the use of blood containing a pathogenic organism was to represent a greatly reduced hazard. Serological tests detect syphilis in the prospective donor and other infectious diseases can be kept at a minimum by proper questioning and examination of donors. In countries where malaria is endemic, it is impossible to avoid using donors with a history of malarial infection. Homologous serum jaundice or serum hepatitis remains a problem, as there are many carriers of the virus who give no history of jaundice.

The concern about air embolism has extended from fear of an occasional bubble in the transfusion tubing to relative indifference to the injection of moderate quantities of air. Apparently a few cubic centimeters of air are fatal only if present in a pulmonary vein and the resulting fatality is apparently due to the air bubble entering a coronary artery with resulting myocardial ischemia. The injection of a few cubic centimeters of air into a systemic vein in general seems to be without ill effect. This fact should not justify carelessness in the transfusion procedures. When a considerable amount of air enters a systemic vein death may result from air block of the right ventricle or frothing of the blood with resultant delay in emptying the right ventricle and delayed passage through the pulmonary tree. Occasionally the blood filter of a transfusion set becomes coated and, as a result, the blood level inside the filter is below the level of blood outside. Air may then be trapped in the blood passing through the filter and the tube leading to the recipient will be seen to be full of a mixture of blood and minute air bubbles. A considerable volume of air can enter the systemic circulation if this continues. Obviously the filter should be changed. Occasionally, when a cannula or tube is placed in a vein and the vein wall is not secured tightly around it, air can be drawn into the vein. This condition may exist for a considerable time and produce untoward results. Air leaks in the rubber tubing resulting from puncture with too large a needle while giving an additional injection may permit air to be drawn in if the flow is rapid. This can go on for some time. The amount of air that can be drawn into large needle in the brief space required to change transfusion sets is not large, but even this can be prevented by finger or tourniquet pressure on the vein above. A special hazard exists, of course, when blood is being transfused rapidly under positive pressure from an oxygen tank or hand pump. If the attention of the attendant is distracted for a short period, the bottle may empty and a considerable amount of air may enter the vein in a short period. Even the blood donor may be exposed to danger. If the vacuum is allowed to escape from the present type of tightly sealed vacuum bottle for drawing blood and blood is pumped into the bottle by venous pressure, the air trapped in the bottle will be compressed. There will be air under moderate pressure above the blood in the bottle. If the tourniquet is released from the donor's arm before the needle is removed from the vein, a considerable amount of air can rush into the vein and a sizeable air embolism can result. Fatalities have been reported. It is always a temptation to remove the tourniquet first as the amount of bleeding from the puncture wound is diminished. This procedure is neater but it is more hazardous. The needle should be removed first and then the tourniquet.

In 1900 Landsteiner and Shattuck aided blood transfusions on the road to their present importance by discovering the presence of agglutinating and agglutinable substances in the blood. In 1901 Landsteiner described the existence of three distinct blood types based on these substances, and in 1902 De Costello and Sturli described a fourth. In 1907 Jansky confirmed Landsteiner's work and further confirmation was given by Moss in 1910. Technically such support was desirable and led to rapid acceptance of the existence of such blood types. Unfortunately, these men worked largely independent of each other and adopted different labels for the four basic blood types which created a confusing situation which has not yet been entirely cleared up.

The existence of the four basic blood types rested upon the possible presence in the red blood cells of two specific antigens for which two specific antibodies could be demonstrated in the blood serum. Of these four specific substances no individual has more than two and these must exist in such a distribution that no individual's blood serum contains an antibody capable of agglutinating the antigen carried by his own red cells as that would not be compatible with life. With such axioms, four blood types are possible.

| International or Landsteiner | Moss | Jansky | Antigen in Red Cell | Antibody in Serum | Percentage in white races |
|---|---|---|---|---|---|
| O | 4 | 1 | None | anti-A,<br>anti-B | 43 |
| A | 2 | 2 | A | anti-B | 40 |
| B | 3 | 3 | B | anti-A | 13 |
| AB | 1 | 4 | AB | None | 4 |

In our country use of the International classification is now practically universal.

The reason for severe or fatal blood transfusion reactions became apparent with clarification of these basic blood types. If type A blood is given to a type B individual, the anti-A antibody in the serum of the type B recipient agglutinates the type A red cells of the donor. This is a major mismatch. It is obvious that the anti-B antibody in the donors' serum possesses similar ability to agglutinate the B antigen in the recipients' red cells. In practice, probably due to dilution of the donors' serum in the recipients' serum, this is usually of lesser importance and is referred to as a minor mismatch.

Ottenberg in 1911 pointed out that, inasmuch as the red cell of type O blood carried no antigen, they could not be agglutinated and, therefore, type O blood could be given to any blood type recipient without danger of a major mismatch, so type O became known as the Universal Donor. Similarly, type AB, having no antibodies in the serum capable of agglutinating either the A or B antigen, could be transfused with any type blood without danger of a major mismatch and became known as the Universal Recipient.

It soon became apparent that type O blood was not an entirely safe universal donor blood. The levels of anti-A and anti-B antibodies in the serum of all type O bloods is by no means the same, some have a very much higher titer than others. If the titer is high enough and type O blood is given to a recipient who is not type O, the existing minor mismatch may become serious and the recipients' red blood cells may be agglutinated by the antibodies in the donors' serum, despite its dilution in the recipients' blood stream and a severe or fatal reaction may occur.

For a time the discovery of the Rh antigen, to be discussed later, masked this effect and it was thought that reactions previously reported following use of type O blood, for recipients other than type O, were due to the Rh factor. The work of Aubert, Boorman, Dodd and Loutit in 1942 definitely clarified this point and showed that about 40% of type O individuals had a sufficiently high titer of anti-A antibody to produce serious reactions. Others confirmed this, although the exact percentages varied, but, in general, about 50% of type O bloods are of low titer and make satisfactory universal donors while the remaining 50% presented some hazard.

Witebsky in 1945 succeeded in preparing group specific substances A and B capable of partially neutralizing the anti-A and anti-B antibodies in the serum of type O donors and the addition of these substances has been practiced on a wide scale in an effort to make all type O blood satisfactory as universal donor blood.

This situation is further complicated by the fact that the anti-A and anti-B antibodies in the blood serum seem to exist in two forms, one of which is the natural antibody producing the usual agglutination of red cells carrying the corresponding antigen, and another called the immune antibody which produced hemolysis of the red cells carrying the corresponding antigen. These immune antibodies are not present universally and are not readily detected by the simpler types of crossmatching technics. They are thought to be produced by pregnancies of different blood type from the mother, by previous transfusions, by recent injection of tetanus antitoxin or toxoid and probably by other unrecognized factors. Neutralization of the immune forms of the anti-A and anti-B antibodies is not readily accomplished by the type specific substances of Witebsky, much greater quantities must be employed and even then complete neutralization may not occur.

When an individual is given blood of an incompatible type, the resulting agglutination, hemolysis or both of the donors' red cells is not necessarily fatal. If the individual recovers he faces an additional hazard. He has had a considerable exposure to a red cell antigen either A or B or both which is not present in his own red cells, although the antibody to that antigen is present in his serum. As a result of this additional exposure the titer of antibody in his serum against that particular antigen may be greatly increased and if at some future time he should again be transfused with red cells containing this same incompatible antigen a rapidly fatal reaction may ensue. At first glance it may seem as if the chance of multiple transfusions with incompatible blood was so remote that it could be deemed unimportant and for most individuals this is certainly true. But it is not true for those who are type A. It is now recognized that the A antigen consists of at least three antigens which are designated as $A_1$, $A_2$, and $A_3$, producing, as a result, three subtypes of type A blood. In addition, type AB blood will actually consist of three subtypes $A_1B$, $A_2B$, and $A_3B$. In typing these bloods, those with the $A_1$ antigen show rapid and complete agglutinations but when the $A_2$ or $A_3$ antigen is present the agglutination may be slow or weak. If the anti A typing sera employed is old or weak, the presence of the $A_2$ or $A_3$ antigen may not be recognized. This can result in type $A_2$ and type $A_3$, being reported as type O and type $A_2B$ and type $A_3B$ may be reported as type B.

The problem of getting the blood from donor to recipient remained a problem even after blood typing in accordance with the four basic groups had been widely established. The contact of untreated blood with almost any type of foreign material initiated coagulation which might result either in halting the flow of blood or passing coagulated particles on to the recipient. Dr. George Crile devised an artery to vein cannula which brought the intima of the donor artery into contact with the intima of the recipient's vein. This was effective in preventing coagulation but the technic was difficult and required the sacrifice of an artery, two factors which restricted its acceptance. In addition, it could be difficult to judge the volume of blood transfused. The Kimpton Brown paraffin tube was an indirect procedure using unaltered blood as it depended on the smooth surface of the paraffin to delay coagulation. By this technic a known quantity of blood could be transfused. The development of anticoagulants for addition to the blood made indirect transfusions truly feasible. In 1914 Hustin of Belgium carried out indirect transfusions using a glucose sodium citrate solution as an anticoagulant. In the same year Agote, in Buenos Aires, performed a transfusion using citrate alone. Lewisohn and Weil in 1915 standardized the sodium citrate anticoagulant procedure which has remained basic since that day.

Once it became possible to obtain blood in a fluid state for indirect transfusions, efforts to bank the blood for future use followed. In 1916 Rous and Turner showed that red cells in a glucose citrate solution remained suitable for transfusion as long as four weeks and Robertson in 1917 described 22 cases in which transfusions of one to two liters of blood from 10 to 16 days old was successfully given to American and English troops without serious ill effect.

At the conclusion of World War I little further interest in blood storage was apparent until 1930 when many centers in Russia, Argentina and France reported successful transfusions with bank blood. Study of stored blood showed that the red cells died and underwent hemolysis. This could be delayed by the addition of glucose and storage at low temperatures but the blood would finally become unsatisfactory for transfusion. At that time it was felt blood might be stored satisfactorily as long as thirty to forty days.

The Russians were active in this field. As early as 1865 Sautougin had suggested the use of blood stored at low temperatures for wartime and obstetrical emergencies. By 1937 the Central Institute of Blood Transfusions at Moscow was not only using stored blood on a wide scale but had experimented with the use of blood from cadavers with considerable success. Following the published Russian reports, the first blood bank in this country was established at Cook County Hospital in 1937 by Fantus. Subsequently, blood banks spread throughout the country with great rapidity.

Even though blood can be safely stored and transfused, we need to know something about the fate of its individual components once the blood has been removed from the donor. This problem presents two facets; namely, what happens to blood while it is stored and what happens to either fresh or banked blood after it is transfused. When blood is stored it must be maintained at a temperature between four and ten degrees Centigrade. Lower or higher temperatures, even for a short period, markedly impairs red cell survival time. If the blood is maintained at this temperature, it can be transported by any means without affecting the viability of the cells.

Fresh blood contains a mixture of red cells of varying age. Following transfusion red cells die off in a linear fashion with a maximum life expectancy of about 120 days. After that all the transfused red blood cells are gone. When the blood is stored rather than being immediately transfused, this aging of the red cells continues but is slowed somewhat by the lower temperature of storage. As time passes in storage, some red cells become non-viable, presumably because of derangement of their enzyme systems, some die a natural death, and the survivors all age, even though at a delayed rate, so that when transfused the survival time will always be less than that of fresh blood. Old bank blood therefore has the disadvantage that an appreciably greater volume must be given to obtain any desired increase in circulating red cells. In addition the recipient must dispose of a greater volume of nonviable cells and cellular debris. Because of this, most blood banks have tried to shorten the interval between the taking and giving of blood so as to combine the advantages of instant availability with those of relatively fresh blood. Even though red cells appear intact after storage for several days, they may rapidly disappear from the recipient's blood stream following transfusion having become non-viable. In 1947 Rapaport reported that the use of an acid-citrate-dextrose solution as an anticoagulant for bank blood resulted in a much higher survival of transfused red cells. This observation was verified by many others and the use of the citric acid-trisodium citrate-dextrose or A-C-D solution became standard for banked blood.

Outdated blood is employed for the preparation of blood derivatives. While this is certainly desirable where facilities permit, bank blood does not suddenly become unusable at a particular moment. In a real emergency old blood can be used with con-

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siderable less hazard than that presented by the emergency. In addition old blood might well be employed for certain cases of chronic anemia or cancer where economic or other factors makes it difficult to obtain fresher blood. Though not the best, it may well be better than none at all.

The problem of bacterial infection arises in connection with the use of old blood. Despite the most meticulous technic, bacteria present in the skin of the donor at the site of puncture may gain entrance to the blood. If the blood is promptly refrigerated and kept so until transfused, no marked growth of the usual pathogenic organisms will occur. However, there are certain organisms, ordinarily not particularly pathogenic, which grow well at the refrigerator temperature for bank blood. Hemolysis and discoloration of the supernatant plasma may not be apparent as the hemolyzed blood fails to break through the upper layer of sedimented white cells. In using older blood, a hanging drop can be examined microscopically for bacteria. This should be done just prior to using the blood for transfusion. It is generally accepted that, unless enough bacteria are present to be visible by this means, a serious reaction will not occur.

When blood is being given over a prolonged period, bacteria can grow in the warm blood that covers the filter with resultant contamination of the blood being transfused. A limit of eight hours should be placed on the use of the same filter.

The National Health Institute sanctions the use of bank blood properly drawn and stored for a period of 21 days from the time of collection. Many blood banks set a limit appreciably shorter than this.

Experiments to determine the life expectancy of white blood cells are difficult to perform. So far as can be judged, it does not exceed a day or two. In blood transfusions, as now performed, it is recognized that the citrate solution is itself toxic to white cells and, in addition, they tend to cling to glass surfaces and become damaged. The white cells do not respond to clumping technics as do the red cells and efforts to trace their survival by such means is of no avail. It can be accepted that when fresh blood is transfused the white cells die very soon and in bank blood stored even an hour or two they are already dead. Present transfusion technics are not adequate for the transfusion of living white cells and, even if satisfactory technics were available, the apparent very short life of the white cell would necessitate retransfusion within a matter of hours, if our object was to maintain an appreciable white cell count in an individual with leukopenia.

The survival of transfused platelets is difficult to determine because of the problem presented in following the transfused platelet after it arrives in the recipient's blood stream. It is thought their survival time does not exceed five days. This is based on transfusion by vessel to vessel anastomosis. When a direct system employing syringes was employed, there were no appreciable platelets transferred to the recipient's circulation. When blood is banked the platelets rapidly disintegrate. Present transfusion technics accomplish no effective transfer of blood platelets. However, in 1945, Jaques, Fidlar, Feldsted, and MacDonald pointed out the importance of protecting blood from contact with the surface of bottles, needles and other apparatus employed in transfusions. Such contact damages the blood cells, platelets, and plasma proteins. Today, silicone preparations are available for the treatment of glass, metal or tubing to produce non-wetable surfaces of either short or long duration as desired. Following this Monor and Burnett have reported on the preparation of platelet concentrates for treatment of individuals with thrombocytopenic purpura, aplastic anemia and acute leukemia. This procedure is of interest because blood drawn into standard transfusion bottles, especially of the siliconized type, containing standard A-C-D solution, can be employed. Using Dextran to speed sedimentation of the formed cells and Triton solution to prevent clumping of the platelets left free in the plasma, a suitable centrifuging technic produces rapid sedimentation of the cells and the platelets dispersed in the plasma can be drawn off.

The plasma component of the blood apparently undergoes no marked alteration in protein content. Present in the plasma are the antibodies that have been developed by exposure to infectious diseases and the use of blood transfusions in the treatment of such diseases rested, in part at least, upon the hope that effective antibodies would be present in the transfused blood. Antibiotics have proven much more effective against bacterial infections and blood transfusions are rarely given for that purpose. However, against viral infections the blood plasma may contain many effective antibodies. It is known that these antibodies are concentrated in the gamma globulin fraction of the blood plasma which is readily separated from the plasma in commercial laboratories and possesses two advantages: the antibodies are concentrated and the virus of serum hepatitis is rarely, if ever, found in gamma globulin, so that its administration is free of this hazard. Antibody molecules have a half life of 14 days but their disintegration follows a logarithmic curve, rather than a linear one, so after two months about 10% of its antibody activity remains. It is apparent that bank blood stored for less than 14 days may have effective antibodies against viral diseases but the concentration will be appreciably less than that to be derived through use of gamma globulin.

With the establishment of blood banks the use of blood transfusions increased at a rapid rate. There were reactions and there were occasional fatalities. Some reactions were due to errors. These were mainly due to the increased work load, haste and clerical errors rather than technical mismatching of blood. There were, in addition, reactions that were not covered by this explanation. The most careful checking of the bloods revealed no mismatch so far as basic type was concerned and attempted explanations based on pyrogenic reactions to foreign material or broken down blood in the apparatus failed to satisfy.

One should not minimize the importance of pyrogenic reactions. Anyone who had occasion to use the old type of transfusion equipment with locally cleaned and resterilized tubing will remember these reactions. The replacement of such equipment with the modern closed disposable transfusion set has made such reactions a rarity.

In 1941 Landsteiner and Weiner reported the discovery of another antigen of the red blood cell which they called the Rh antigen. If this is present in the red cell the blood is called Rh positive; if absent it is Rh negative. About 85% of people are Rh positive and 15% are Rh negative. The Rh antigen is inherited independently of the A and B antigens so there is no connection between the ABO type and the Rh type.

A person who has Rh negative blood may develop anti Rh antibodies due to exposure to Rh positive antigen. This can occur by receiving a transfusion of Rh positive blood. It also may occur when a woman has a fetus with Rh positive blood. This sensitivity takes a few days to develop but once present it is permanent and a hemolytic reaction may occur if that individual is again transfused with Rh positive blood. This Rh factor was the explanation for many of the otherwise inexplicable transfusion reactions which occurred with blood that had been correctly grouped under the ABO system. With the introduction of Rh typing in addition to established ABO typing the incidence of reactions was reduced.

The mechanism by which an Rh positive fetus in the uterus of an Rh negative mother incites the production of immune anti-Rh antibodies in the mother is not known. It may result from fetal red cells crossing the placental barrier, placental infarcts, fragmentation or some other mechanism. It is known, however, that the anti-Rh antibody produced in the Rh negative mother crosses the placental barrier to enter the fetal blood stream. If the titer of anti-Rh antibody in the fetal blood stream is sufficiently high, destruction of the fetal red cells occurs. This condition is known as hemorrhagic disease of the new born or erythroblastosis fetalis. For the mother to possess a sufficiently high titer of anti-Rh antibody to produce clinical erythroblastosis apparently requires either repeated pregnancies with Rh positive fetuses and a gradually rising titer of anti-Rh antibodies or else a previous transfusion with Rh positive blood.

When these infants are born with severe blood reactions and anemia, the problem of blood transfusions arises. The infant is Rh positive but its own Rh positive red cells are being destroyed by the anti-Rh antibodies received from the mother. To give this infant additional Rh positive red cells is to invite further red cell destruction. However, the infant can be given Rh negative red cells of its own ABO type and these Rh negative red cells will survive for their natural lifetime in the infants circulation, undisturbed by the presence of the anti-Rh antibody. The infant will continue to produce its own Rh positive red cells and these will be destroyed until the anti-Rh antibody obtained from its mother is exhausted. Until this time the infant's condition may necessitate the further transfusion of Rh negative red cells. In general these infants should not be transfused with Rh positive cells until at least two months after birth, at which time it can be assumed that the anti-Rh antibodies are exhausted. The use of adequate transfusions of Rh negative blood will remove the stimulation to the infant's bone marrow to produce red cells which will occur if anemia is present. As these cells would simply be destroyed as produced in severe cases, their production can add to the infant's illness. The transfusion of Rh negative blood into these infants may result in a rapid subsidence of anemia and jaundice.

With this observation as a basis it became apparent that a still greater salvage of seriously ill infants might be accomplished by removing the greater portion of the Rh positive red cells present in the infant at birth and replacing them with Rh negative red cells. It would seem reasonable to believe the hemolytic process might be brought to a halt at once. With the development by Diamond of the technic for catheterization of the umbilical vein it became possible to carry out exchange transfusions.

Some of the early efforts to treat such infants by transfusion of Rh negative blood of proper ABO type resulted in some unfortunate results. In connection with this it was noted by Davidsohn, Levine and others that some Rh negative mothers with high anti-Rh titers failed to produce erythroblastic infants even though the infant was Rh positive. Weiner and Diamond concluded that immune anti-Rh antibodies required an activator present in adult human blood serum which has been called conglutinin. From Witebsky and his group came evidence that the normal new born infant has no appreciable amount of this substance in his blood serum. In those cases where the mother has a high titer of anti-Rh antibody but fails to cause erythroblastosis in an Rh positive fetus there has been an apparent failure of this substance, conglutinin, to enter the fetal circulation from the mother. When sufficient conglutinin is passed to the fetus along with anti-Rh antibodies to produce clinical erythroblastosis it is obvious that in occasional cases either simple transfusions or exchange transfusions with adult whole blood even though of proper ABO type and Rh negative may result in the addition of sufficient conglutinin to the infant's circulation to activate all the anti-Rh antibodies received from the mother and produce the marked increase in red cell destruction and jaundice noticed. In an effort to overcome this, Pennell had recourse to the aspiration of sedimented red cells from the bottom of the bank blood .bottle, thereby leaving most of the plasma with its conglutinin behind. For more severe cases the red cells could be washed free of all traces of donor plasma before being transfused.

Approximately 95% of the cases of erythroblastosis fetalis arise from reaction due to the Rh antigen. Of the remaining 5%, an appreciable number are the result of the A and B antigens. These cases almost always occur where a type O mother has a fetus of different ABO type. For some unknown reason the anti-A and anti-B antibodies of the type O mother reach the fetal circulation in much higher titer than the anti-A antibodies of the type B mother or the anti-B antibodies of the type A mother. This apparently is the reason most of these cases occur with type O mothers.

Determining whether the erythroblastosis of a particular infant is due to the Rh antigen or the A and B antigens may be difficult and time consuming. It is simpler to use type O Rh negative red cells which possess neither the A, B or Rh antigen and can therefore survive in the fetal circulation.

Whenever a special preparation of red cells is made up for transfusion the necessary needling, pipetting or washing introduces the possibility of bacterial contamination. Such preparations should be placed back under refrigeration if not used at once and in any event should be used within 24 hours.

The situation is further complicated by the fact that the Rh antigen has been shown to be not a single pure antigen but to consist of three antigens which have been labelled C, D, and E. Of these, D is the predominant antigen and is the responsible factor in the majority of reactions or cases of erythroblastosis fetalis due to the Rh antigen. Each of these produces a corresponding antibody, namely anti-C, anti-D and anti-E. In present blood grouping technics the anti-D is generally used for the identification of the Rh type and the C and E antigens may react weakly with this. The situation is not one where the blood either reacts strongly Rh positive or else is Rh negative. Instead, considerable skill may be required on the part of the technician to identify the reaction of those giving weak Rh responses so that they will be correctly grouped. When the requisite skill is lacking such blood may be grouped as Rh negative with consequent hazard to any recipient.

Along with the clarification of the A and B antigens and the Rh antigens came the discovery of a large number of other antigens carried by the red blood cells of some individuals. Some of these are common. Many are weak. One must keep in mind that the A and B antigens produce their marked effect when incompatible blood is transfused because the anti-A and anti-B antibodies already exist in the blood serum of a large number of individuals. For the Rh antigen and the large group of other antigens on the red cell, this is not the case. Antibody for these different antigens must be produced in the blood of individuals who are negative for that antigen. For first transfusions in individuals who have never been pregnant, or for first pregnancies in individuals who have never received a blood transfusion there is no significant chance of a reaction based on these antigens.

The antigen systems which may be found in the red blood cell, in addition to the A, B and Rh, are the MNS, KELL, Lutheran, Duffy, Lewis, P, Levay, Jay, Jobbins, GR, and Kidd. Several of these have already been shown to be responsible for deaths occurring from transfusion reactions and erythroblastosis fetalis.

Today with many individuals receiving multiple transfusions, sensitivity to these antigens may become a matter of extreme importance. We must recognize the fact that a patient's blood is highly individual and probably no two are identical. The transfused blood suffices temporarily but, in time, it is destroyed. However, any antigenic substance, carried by the red cells of any of the donor blood that is alien to the recipient, has initiated the production of immune type antibodies for that particular antigen. A single transfusion of compatible ABO type blood may not produce a significantly high titer of these other antibodies but with multiple transfusions or pregnancies this does not remain true.

Skilled technicians using modern blood typing and matching technics will recognize the presence of such antibodies in the serum of the proposed recipient or prospective donor and can reject donors found incompatible. There is another side to the problem. Recipients having a high titer of antibodies to any one or several of these less well known antigens may present a problem insofar as finding a compatible donor is concerned. True, we can screen the incompatible if sufficient care is used, but we may find none who are compatible. With some antigenic situations, the chances of finding a compatible donor may be on the order of 1 in 10,000 of random donors tested. So within the limits of any one blood bank and its associated technical personnel, it can be readily recognized that such individuals can become essentially untransfusable. Unless a compatible donor is found within a reasonable number of trials, the search becomes technically and economically impossible.

It has been proposed that a National or International Blood Registry be maintained with listings of donors whose blood types are known, not only with regard to our usual ABO and Rh classifications but also with regard to all these other antigens. In time of need a tiring search through a great number of random donors would not be necessary as compatible donors could be determined from the Registry.

When one considers the tremendous number of blood transfusions that have been given during and since World War II, one realizes that this problem, which has been largely one of academic interest in the past, can soon become one of everyday interest to all.

It is of interest that extensive experimental work is being carried out on the quick freezing of blood to very low temperatures and it has been found that red cells can be kept alive for many months. While present technics are elaborate, insofar as the equipment necessary to prepare and freeze the blood or to reconstitute it for transfusion purposes is concerned, yet it seems probable that, in the very near future, reasonably simple means for banking blood for long periods will be available. When this becomes the case, a wide variety of different bloods, which have been completely typed for their antigenic makeup, can be kept available.

# DOUBLE PREGNANCY IN A BICORNUATE UTERUS

## A REVIEW OF THE LITERATURE WITH A CASE REPORT

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Congenital anomalies of the uterus are not mere anatomical curiosities but are potentially serious conditions since it often happens that uterine anomaly is responsible for abortion, miscarriage, premature and difficult delivery, or uterine rupture. Early diagnosis may be necessary and urgent.

### ETIOLOGY

Causes of malformations of the female genital tract are not completely known. In early embryonic life the Mullerian ducts give rise to the uterus, both tubes, and the upper two-thirds of the vagina. If this normal sequence is disturbed and fusion of the Mullerian ducts fails to occur completely or in part, the result will be an anomalous development of the uterus or vagina or both. Falls[1] (1939) has expressed the opinion that hormonal failure in intrauterine life might be chiefly responsible for the improper fusion of the two halves of the uterus, as well as for other developmental deficiencies in this organ. On the basis of an observation made by Felix in 1912, Anderson (quoted in Jarcho[2]) believes that many uterine anomalies can be explained on the ground that the left Mullerian duct usually advances slightly before the right and that an error of timing during embryological development might result in a malformation. However Jarcho,[2] Bailey and Miller, DeLee and Greenhill,[3] Moncure[4] and others take a less complicated view. They maintain that various types of uterine anomalies can be attributed to abnormal fusion or lack of fusion, in whole or in part, of the Mullerian ducts.

### CLASSIFICATION

Between the premature uterus didelphys and the almost normal uterus arcuatus, a large number of uterine anomalies are possible. We believe that the classification advocated by Jarcho is logical and quite informative.

### INCIDENCE AND STATISTICS

There is no definite figure that can be quoted since many of the congenital anomalies of the uterus remain undiagnosed. However, series of observed and collected cases from different sources indicate that the incidence of these anomalies varies from 0.004 to 3.8 per cent.

Fenton and Singh[5] found that uterus didelphys and uterus bicornis unicollis, vagina simplex were the most commonly found abnormalities in their series. During the 25 year period (1925-1949), 62 patients presenting different types of congenital malformations of the uterus and vagina were observed at the obstetric service of the Sloane Hospital for Women. Four of the sixty-two had uteri duplex bicornis bicollis, vagina simplex. In the same 25 year period there were 60,788 deliveries, giving an incidence of 0.00065% of the deliveries. As to the occurrence of uterine abnormalities in pregnancy as a whole, Taylor[6] states that it occurs once in about 1,500 obstetrical and once in about 2,000 gynecologic cases. Eck stated that the duplicity of the genital tract is found most frequently in broadly built women of stable temperament. Falls[1] feels that pregnancy and labor in the arcuate type of bicornuate uterus is of relatively frequent occurrence. Impregnation with normal delivery has taken place with cases of double vagina and double uteri and the condition was discovered later during an operation or on pathological examination of the uterus.

Probably the earliest recorded case of a double uterus associated with pregnancy

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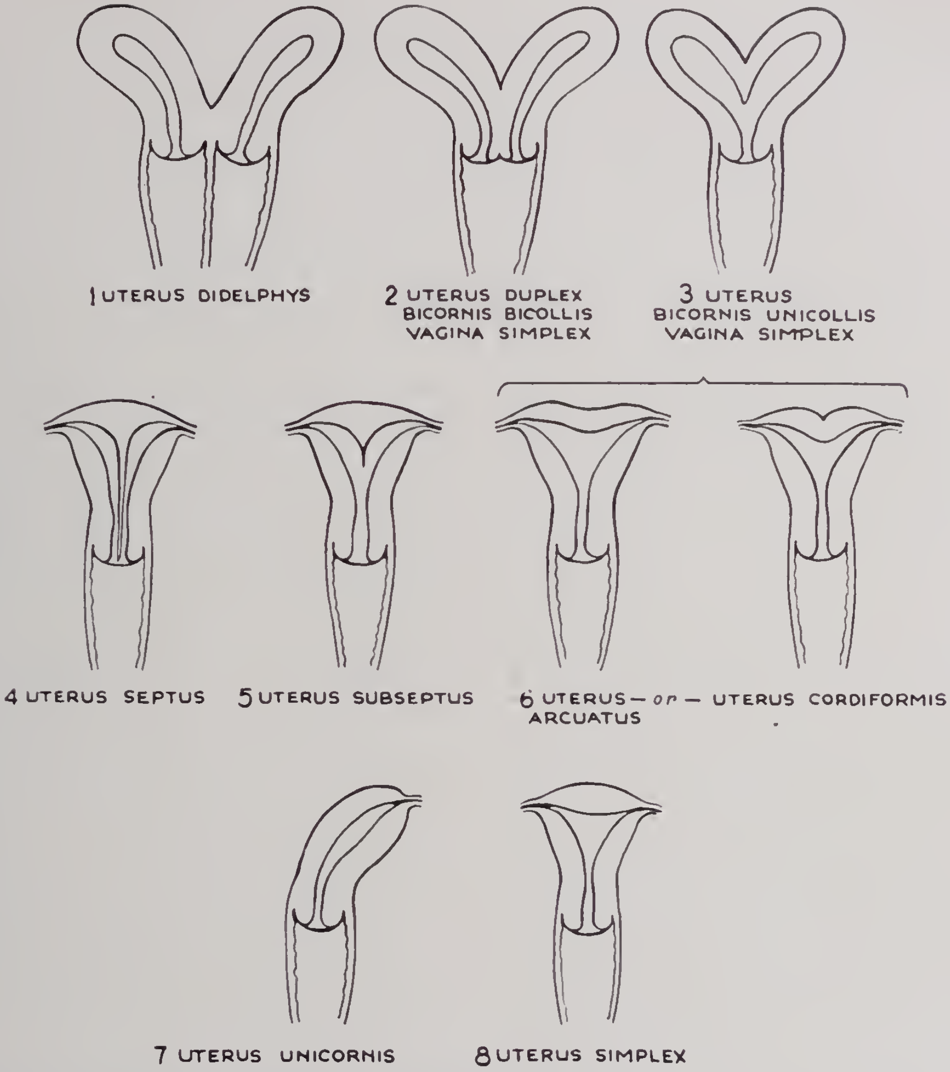
1 UTERUS DIDELPHYS
2 UTERUS DUPLEX BICORNIS BICOLLIS VAGINA SIMPLEX
3 UTERUS BICORNIS UNICOLLIS VAGINA SIMPLEX
4 UTERUS SEPTUS
5 UTERUS SUBSEPTUS
6 UTERUS — or — UTERUS CORDIFORMIS
ARCUATUS
7 UTERUS UNICORNIS
8 UTERUS SIMPLEX

Fig. 1. Normal uterus and seven types of malformation of the uterus and vagina. (Courtesy Jarcho, J.: Malformations of the uterus, Am. J. Surg. 71: 109,1946.

was reported by Mariceau and Vassal in 1669. (quoted in Jarcho[2]). Weise in 1883 reported the first American case. It was followed by a case report by Lane in 1885. In 1900 Wells found fifty-seven pregnancies in 112 cases of double uteri. Boni in 1901 collected 484 single pregnancies in double uteri. Smith[7] studied the records of the New York Lying-In Hospital during a period of 30½ years (January 1899 to July 1930). During this period 35 cases of double uterus were recorded, nineteen of which were observed by Smith personally. He was astonished to note that all types of double uterus had occurred once in 1,458 cases during the five and one-half years of personal observation. Whereas, in the records of 114,243 consecutive patients examined during the previous 25 years, double uterus had been recorded once in 7,040 cases. It was inferred that some cases were not recognized or had not been recorded.

In Germany, Pfleiderer[5] reported that, during a period of 20 years, 93 instances of genital anomaly were observed at the Tubingen Frauenklinik. Fourteen were of rudimentary solid uterus with solid vagina, six of uterus unicornis with rudimentary horn, fifteen of uterus bicornis unicollis, sixteen of uterus septus with double or single vagina, and twenty-seven of uterus arcuatus.

In their report on pregnancy in uterus duplex, Acosta-Sison and Katigback[9] stated that of the 68,682 cases admitted to the Philippine General Hospital from 1912 to 1937, only 3 cases of bicornate uterus were noted.

Moncure (quoted in Corbet[10]) reported a case in which two babies in a didelphys uterus were delivered by a Cesarean section. They were easily resuscitated.

In a case reported by Corbet,[10] a live fetus was delivered spontaneously from the right uterus and three days later a second living child was born. Each uterine component behaved as an independent unit and went into labor at a different time.

Bhagwat, S. A.[11] reported a case of twin pregnancy in a uterus duplex in which the two labours took place at an interval of 26 days. Both babies were alive at the time of each delivery.

David Rosenbloom[12] reported a full term pregnancy in a bicornuate uterus with premature separation of central placenta previa which was delivered by a Cesarean section because of uncontrollable bleeding on admission. Charles J. Kickham reported a full-term twin pregnancy in a "uterus septus". Both babies were in good condition. The patient was delivered by a Cesarean section because, on admission, she was in a toxaemic condition. On the eleventh postoperative day, the patient had a typical uraemic type of convulsion and died in about one hour. No permission for autopsy was obtained.

Arthur B. Barrett[13] reported a case of bicornate uterus with pregnancy in each horn. The patient was admitted with threatened premature labor, and delivered one baby spontaneously with the aid of low forceps without difficulty. Five minutes later the placenta was expressed from the left horn. The left horn did not contract well and more than usual bleeding continued. For this reason delivery of the right horn was done by internal podalic version and extraction. Postpartum recovery was uneventful. Barrett also reported in 1934 a bicornuate uterus with a pregnancy in each horn. Both infants were born prematurely and died shortly after delivery.

Hagood and Eastluck (quoted in Wong[15]) reported a case of pregnancy in a bicornuate uterus complicated by an incarceration of the non-pregnant horn. The details were not given. Jellinghaus reported a case of a full term child in one uterine horn and a 4 month fetus in the other. He also reported another instance where the patient was delivered of a full term white infant from the left horn, and two months later a full term black infant from the right horn of the uterus. Ross reported a triple pregnancy in a double uterus.

Taylor[6] in 1943 reviewed the literature on bicornuate uterus and found a total of 271 cases. He summarized them as follows:

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|---|---|
| Total cases | 271 |
| Obstetric | 265 |
| Gynecologic | 6 |
| Incarceration of a nonpregnant horn | 12 or 4.5% |
| Maternal death | 4 or 1.5% |
| Abortions: | |
| Smith | 12.8% |
| Schauffler | 53.0% |
| Average, DeLee and others | 25.9% |

In 1925 Rowlett of Florida described a case of double uterus with pregnancy of each horn. The condition had been discovered during a laparotomy two years previously. Despite this knowledge the patient went into labor after five months' gestation, miscarrying male fetuses weighing 3 pounds 4 ounces and 2 pounds 3 ounces. The question of superfetation was raised.

In 1933, Wong[15] of the Peiping Union Medical College reported on a pregnancy in one horn of a double uterus. At six months, there occurred all the symptoms of a threatened miscarriage resulting in expulsion of a decidual cast of the nonpregnant horn. Three and one-half months later the patient was delivered of a normal girl baby.

In 1939, Johnston of Akron, Ohio, reported a case with a dead fetus in one horn and a normal pregnancy in the other. The condition was discovered during a laparoto-

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# ✚ Editorial ✚

The tremendous advances in medicine and the trend to specialization have placed the general practitioner in a most important position — the first line of defense. In war it is the infantry, in football the linemen and in medicine the family doctor whose actions make the difference between success or failure.

## PREVENTION OF DEFORMITY

Physical Medicine and Rehabilitation is a relatively young but none the less important medical specialty. In another part of this Journal there is an article in which the author pleads with the general practitioner to carry out certain simple procedures in caring for the patient who has had a cerebral accident. These simple procedures are commonly used in the large teaching centers and have been proven effective in the prevention of residual deformities. In private practice, most patients with hemiplegia are treated by the general practitioner. It therefore is his responsibility to adopt any safe and simple measures that have been shown to be effective in treating these patients.

## MENTAL ILLNESS

Psychiatry is an old and time honored medical specialty. It is the opinion of authorities, however, that the advent of the new tranquilizing drugs has created a situation in which the family physician is prescribing more medication for the mentally disturbed individual than is the psychiatrist. This may be a good thing because in his work at the front line the family doctor sees mental illness in its earliest stages and is in a position to bring psychiatry to all segments of the population. This move of psychiatry from the mental hospital into the community is a good thing. It raises the problem, however, of post-graduate training in psychiatry for the family doctor. The American Academy of General Practice already has declared that the general practitioner desires this training. The National Mental Health Committe is now proposing that the Congress allocate funds for such post-graduate training. Their proposal is realistic inasmuch as the general practitioner would be compensated on a scale in proportion to his experience and obtaining such training would not entail too great a financial sacrifice. This is indeed a step in the right direction.

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my in which the cornu with the dead fetus was mistaken for a fibroma and removed. The remaining pregnancy continued uneventfully to term.

In 1943, Major Braze[16], M.C., U.S. Army, reported a case of pregnancy in each horn of a bicornuate uterus which proceeded uneventfully to term with delivery of two normal viable children.

The following is a case report of a woman with a uterus duplex bicornis bicollis, vagina simplex who was first recognized as having a bicornuate uterus at the age of 36 years. She was the mother of one child 11 years old and another 7 years old. All indications lead to the assumption that her second conception was a double pregnancy resulting in a miscarriage at four months and a normal, living, female child at term.

## CASE REPORT

A 36 year old white female had a spontaneous miscarriage on July 8, 1946. Her last menstrual period had been on April 1, 1946. The fetus was inspected personally by one of the authors at the patient's home. The patient continued to bleed for a short while thereafter but made an uneventful recovery.

At the time of her miscarriage, she gave a history of having had regular menstrual periods at 26 day intervals but had always suffered from mittelschmerz and a slight, bloody vaginal discharge at such times. She had had one healthy child on February 27, 1943, and her last menstrual period before this delivery was on June 16, 1942, i.e. approximately eight months previously.

On January 4, 1947, six months after her miscarriage, she was delivered spontaneously of a full term female baby. A short time thereafter a posterior colporrhaphy was performed by another surgeon. No abnormalities of the uterus were noted at this time.

On November 13, 1954, she was examined by one of the authors because of intermenstrual bleeding and a profuse leukorrhea. Pelvic examination showed a marital introitus with a well performed posterior vaginal repair. There was no vaginal septum and only one cervical os could be seen. There was a chronic endocervicitis with moderate erosion. The uterus was found to be unequivocally bicornuate and both cornua were large, symmetrical and of approximately equal size. The cervix was thick when compared with the size of the horns and quite hard. Both ovaries were palpable and of normal size. No adnexal masses were felt. A dilatation and curettage with cauterization of the cervix was recommended.

Operation (Dec. 13, 1954): The cervix revealed a moderate erosion and a chronic endocervicitis. No septum of the external os could be seen but, by means of a uterine probe, a septum was found to be present which extended down to just within the external os, dividing the lower uterine segment into two equal compartments. Both uterine cavities were symmetrical and approximately equal in size, although the probe passed consistently more readily into the right uterine horn. Each side measured three and one half inches in depth. The curettings were normal in appearance and the subsequent pathological report was: "Late secretory endometrium".

Following the operation the patient continued to have intermenstrual spotting.

On October 22, 1955 the patient was again examined by one of us because of upper abdominal discomfort. A cholecystogram on November 30 revealed partially calcified stones in the gallbladder.

Operation (January 16, 1956): A right paramedian incision was made. The gallbladder contained two stones and was removed. Exploration of the pelvic organs substantiated again that the patient had a bicornuate uterus. Both of the cornua were of approximately the same size and were symmetrical, but the left cornua was perhaps slightly smaller than the right. The lower uterine segment felt thick and indurated as compared with the cornua. Both ovaries felt normal.

## SUMMARY

1. A brief review of the reported cases of double pregnancy associated with bicornuate uterus has been presented.

2. An additional case is reported in which a woman with a proven uterus duplex bicornis, vagina simplex had a double, simultaneous impregnation which resulted in a spontaneous miscarriage at three months followed by a spontaneous delivery of a normal, female child at nine months.

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# A LETTER FROM DR. EDGAR MILLER

Continued From February Issue

systolic and 50 - 60 diastolic are the common recordings. However, one case we have on the ward now had an admitting blood pressure of 220/110. The present pressures average 150/90, after having received Apresoline and Serpasil. The background here is renal according to his Fishberg test and urinary findings. Unfortunately, at this time we do not have the material to do the Regitine test. His fundoscopic examination reveals first degree retinal arteriosclerosis. His electrocardiogram shows the inverted T waves with coved-shaped S-T segments as seen in long standing hypertension.

Autopsies are prohibited except in criminal cases. Fortunately we have had no such cases. Recently I saw over a thousand people gathered around an autopsy room in the Government Hospital concerning a case of questionable drowning. It took three policemen to control the crowd and the three doctors on the board had to be protected two days afterwards. As a patient is about to die they generally rush him out of the hospital and carry him to the banks of the sacred Baghmati River which is a branch of the Ganges. If they cannot make the river they must die on the earth. Five o'clock the other morning one of our heart cases suddenly died, and due to the lack of help at that hour I helped to carry him out of the hospital to Mother Earth to breath his last. The body is then carried to the river and cremated. One often sees the arms or feet protruding from a pyre.

Incidentally our electrocardiograph machine is working fine. We have taken over 70 tracings thus far. This is the first instrument in the country. Heretofore a machine would be flown up from India, as in the case of the late King Tribiuana. Recently one of our best physicians, the physician head of the military, or as in our country "The Surgeon General," had a typical massive anterior infarction as shown pathognomonically by the electrocardiograph and unfortunately he expired the next day. At least our Mission Hospital could give a diagnostic report to the attending Nepalese physician. This physician is one of their best, well cultured, well versed, and a very keen diagnostician as well as therapeutist.

The work in general is very rewarding as well as frustrating. There are so many fevers of undetermined origin, so many complaints of "Pate man duckhsa" (pain in the stomach), so much undernutrition, so much tuberculosis of all types including Pott's Disease in children, so much leprosy, and various and sundry diseases — not to mention maimed, crippled, blind, and deaf. There is goitre, hernia, hydrocele, malaria, and elephantiasis from filiariasis. How we long for a specialist in every field! The Nepalese people seem to appreciate our efforts; at least they have been most kind. One exception is the Communist paper which published a fictitious report that of twelve patients we operated on eleven died. Also, a woman was said to be blinded by medicine, and we tied patients down and tortured them. A week later His Majesty the King with his Queen suddenly appeared and paid us a visit for over an hour and viewed our hospital. Furthermore, they accepted our invitation to participate in the official opening ceremonies of our hospital in November.

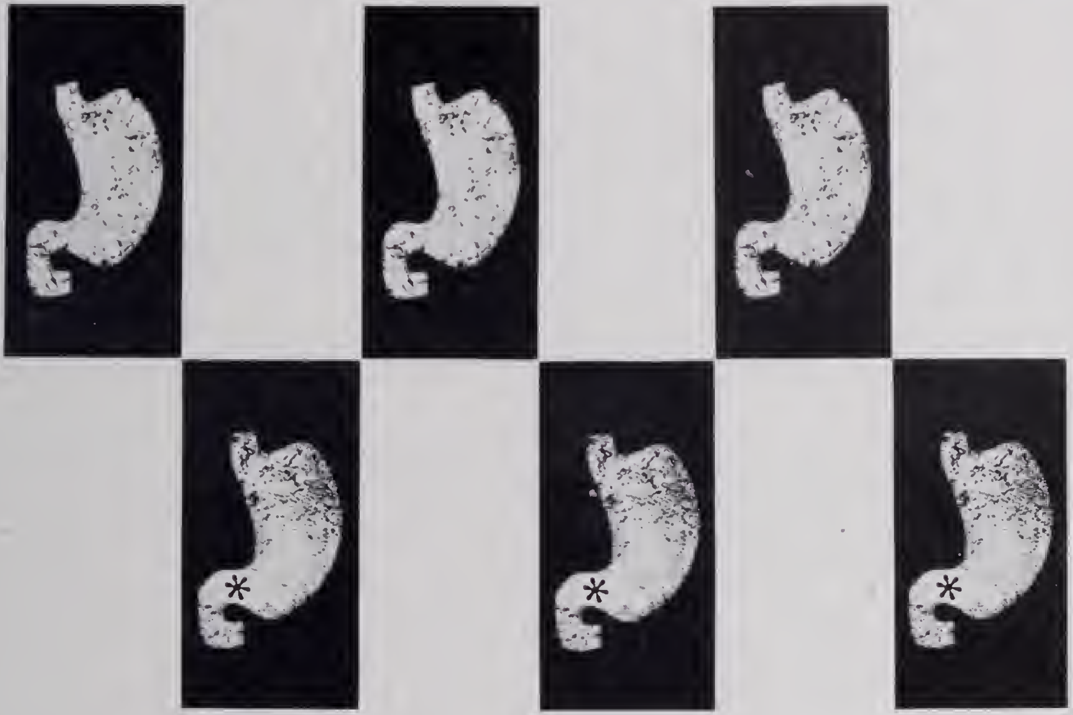
We feel we can do a better job after our equipment arrives, fortunately most is coming in now after getting through the red tape of import licenses and customs. We feel so inadequate with the lack of personnel, lack of tools, and lack of medicine. After two and a half decades of practicing medicine under ideal conditions, this requires quite an adjustment.

For the time I must close. To describe the ritual of a consultation, or attending the clinics, or making rounds through the wards, or even the problem of prescription writing would require a letter. If you are interested in another four months or so from now we would like to tell you of our progress.

Yours sincerely,
Edgar R. Miller, M.D.

October 1956
Shanta Bwahan
Kathmandu, Nepal

TRUE ANTICHOLINERGIC ACTION



# Pro-Banthīne® Inhibits Excess Parasympathetic Stimuli in Peptic Ulcer

Medical literature now contains more than 500 references to the beneficial role of Pro-Banthīne Bromide (brand of propantheline bromide) and Banthīne® Bromide (brand of methantheline bromide) as evidenced by a marked healing response of peptic ulcers. Rapid symptomatic improvement, particularly with reference to pain relief, is followed by roentgenographic demonstration of crater filling.

The therapeutic action of Pro-Banthīne in decreasing hypermotility and hyperacidity, together with the remarkable early subjective benefit, is a desired approach in the management of ulcers.

The initial suggested dosage is one tablet, 15 mg., with meals and two tablets at bedtime. An increased dosage may be necessary for severe manifestations and then two or more tablets four times a day may be indicated. G. D. Searle & Co., Chicago 80, Illinois, Research in the Service of Medicine.

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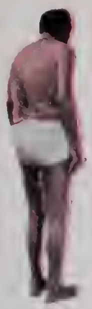

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*Pabalate with Hydrocortisone*

Clinical evidence indicates that, in Pabalate-HC, the synergistic antirheumatoid effects of hydrocortisone, salicylate, para-aminobenzoate, and ascorbic acid achieve satisfactory remission of symptoms in *up to 85% of cases studied*

—*with a much higher degree of safety*

—*even when therapy is maintained for long periods*

—*at significant economy for the patient*

Each tablet of Pabalate-HC contains 2.5 mg. of hydrocortisone—50% more potent than cortisone, yet not more toxic.

**FORMULA**

*each tablet:*

| | |
|---|---|
| ydrocortisone (alcohol) | 2.5 mg. |
| otassium salicylate | 0.3 Gm. |
| otassium para-aminobenzoate | 0.3 Gm. |
| scorbic acid | 50.0 mg. |

OSAGE: Two tablets four times daily.
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**EFFECTIVE** in dermatologic and mixed
tissue infections including the 22%
stant to one or more antibiotics.[3-6]

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biotic therapy.[2,5]

**EFFECTIVE** in diverse infections includ-
the 21% due to resistant pathogens.[1,5]

**% EFFECTIVE** in tropical infections in-
ling those complicated by heavy bacte-
contamination or multiple parasitisms.[7]

1. Carter, C. H., and Maley, M. C.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 51. 2. Shalowitz, M., and Sarnoff, H. S.: Personal communication. 3. Shubin, M.: Personal communication. 4. La Cailie, R. A., and Prigot, A.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 67. 5. Winton, S. S., and Cheserow, E.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 55. 6. Cornbleet, T.: Personal communication. 7. Loughlin, E. H.; Mullin, W. G.; Alcinder, L., and Joseph, A. A.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 63.

†the antimicrobial spectrum of tetracycline extended and potentiated with oleandomycin (Matromycin®) to combat resistant strains of pathogens—particularly resistant staphylococci—and to delay or prevent the emergence of new antibiotic-resistant strains.

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CAPSULES: 250 mg.
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83 mg., tetracycline
167 mg.). Bottles
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*new mint-flavored*
ORAL SUSPENSION:
1.5 Gm., 125 mg.
per 5 cc. teaspoonful
(oleandomycin
42 mg., tetracycline
83 mg.) 2 oz. bottle.

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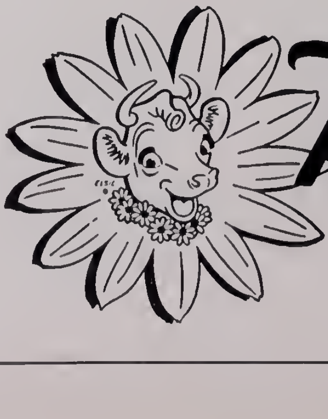

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## *and the Many Physiologic Functions of Its Amino Acids*

The amino acids supplied by meat protein function in many vital ways in addition to their well-known role in the growth and maintenance of tissues. They participate in the body economy as precursors of hormones, vitamins, enzymes, and other physiologic agents.*

Some of the important amino acids supplied by the protein of meat include: tryptophan (utilized for the endogenous production of niacin); tyrosine (the precursor of thyroxine and triiodothyronine); phenylalanine (converted to melanin, a pigment found in the skin, hair, retina, and other tissues; both phenylalanine and tyrosine are precursors of the hormones noradrenalin and adrenalin); glycine (participates in the formation of glutathione, a tripeptide important in tissue oxidation, in the biosynthesis of glycocholic acid, and in the production of purines, uric acid, and porphyrins used structurally for hemoglobin, cytochromes, and iron-containing enzymes); methionine (an important lipotropic agent; participates in transmethylation processes in which creatine, adrenalin, and choline phospholipids are formed).

Top quality protein, as supplied by meat, yields important amino acids for participation in these and other important functions. The excellent balance of available amino acids is an outstanding feature of meat protein.

---

*Geiger, E.: Digestion, Absorption and Metabolism of Protein, in Wohl, M. G., and Goodhart, R. S.: Modern Nutrition in Health and Disease, Philadelphia, Lea & Febiger, 1955, pp. 98-143.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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SYNEPHRICOL® cough syrup

ANTITUSSIVE • DECONGESTANT • ANTIHISTAMINIC

Combines:
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Topical Decongestion — prompt, prolonged

plus Antihistaminic and Expectorant Action

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Each teaspoonful (4cc.) contains:

| | |
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| Neo-Synephrine® hydrochloride | 5.0 mg |
| Thenfadil® hydrochloride | 4.0 mg |
| Dihydrocodeinone bitartrate | 1.33 mg |
| Potassium guaiacol sulfonate | 70.0 mg |
| Ammonium chloride | 70.0 mg |
| Menthol | 1.0 mg |
| Chloroform | 0.02 cc |
| Alcohol | 8% |

Bottles of 16 fl. oz.

EXEMPT NARCOTIC

PHENAPHEN® PLUS

NOSE COLD

each coated tablet:
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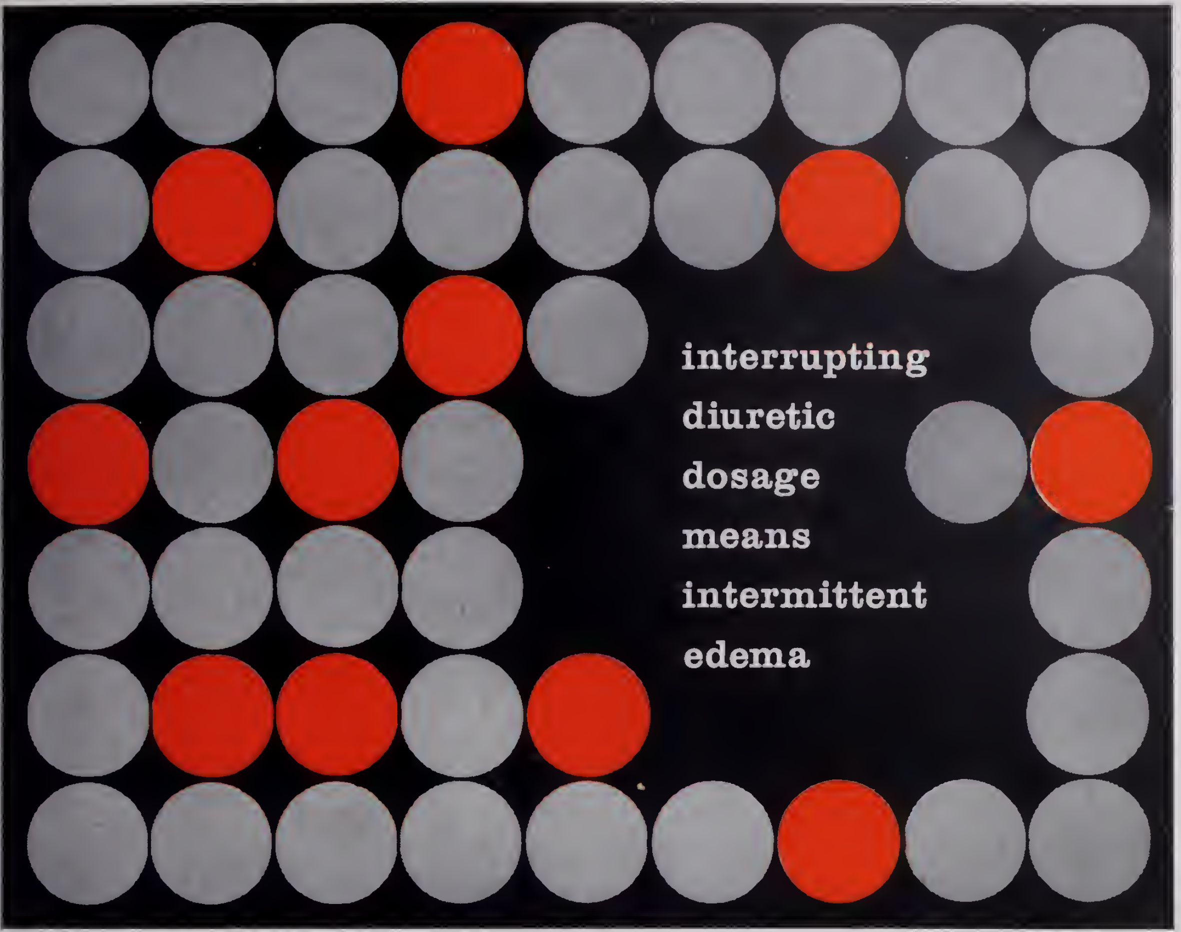

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*developed by RICE*

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*Tranquilizer with muscle-relaxant action*

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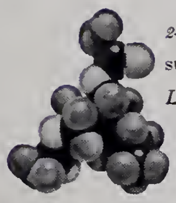
SUPPLIED: *400 mg. scored tablets. Usual dose: 1 or 2 tablets t.i.d.*

*Literature and Samples Available on Request*



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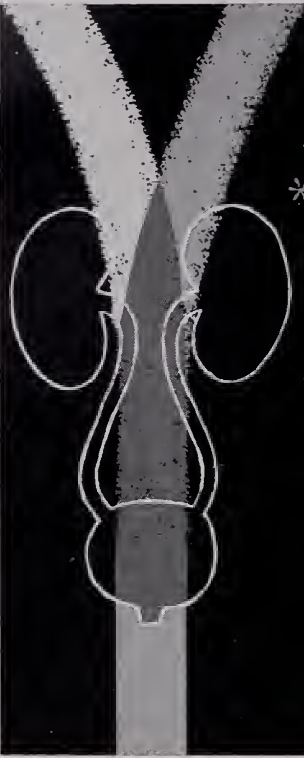

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✱ Sterilizes urine in 1 to 3 days
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Phenylazo-diamino-pyridine HCl—acts solely on the urogenital mucosa; provides prompt relief from burning, pain and frequency.

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Problem-eaters, the underweight, and generally below-par patients of all ages respond to INCREMIN.

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or each cc. of INCREMIN Drops *contains:*

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|---|---|---|---|
| l-Lysine | 300 mg. | Pyridoxine ($B_6$) | 5 mg. |
| Vitamin $B_{12}$ | 25 mcgm. | (INCREMIN Drops contain 1% alcohol) | |
| Thiamine ($B_1$) | 10 mg. | | |

*Reg. U. S. Pat. Off.

Dosage only 1 INCREMIN TABLET or 10-20 INCREMIN Drops daily.

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with sedation

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with light sedation

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Phenobarbital gr. ¼
Acetophenetidin gr. 2½
Acetylsalicylic Acid gr. 3½

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Codeine Phosphate gr. ¼
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Acetophenetidin gr. 2½
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## THE ANTIBIOTIC PRODUCT
## ST LIKELY TO BE EFFECTIVE

**RE THESE ADVANTAGES:**

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those caused by antibiotic-resistant
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peutic, *bactericidal* blood levels are
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reactions are rare at recommended

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have been reported following
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*or adults—two capsules q.i.d.; for children*
*lbs.—dosage in proportion to weight (e.g. one*
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**CONSIDER CATHOCILLIN FIRST**

—for these clinically important infections: tonsillitis; pharyngitis; pneumonia; otitis media; cervical lymphadenitis; streptococcal sore throat; infected tooth sockets; Vincent's infection; acne and superficial skin infections; impetigo; boils, furuncles and carbuncles; lung abscess; bronchitis; mastitis; osteomyelitis; wound infections; postoperative wound infections and infected lacerations; staphylococcal enteritis, staphylococcal diarrhea of the newborn; peritonitis (caused by susceptible organisms); pelvic inflammatory disease; gonorrhea; gonococcal arthritis; urethritis; scarlet fever; erysipelas.

**SUPPLIED:** *Blue and white capsules of* 'CATHOCILLIN' *—each containing 125 mg. of* 'CATHOMYCIN' *(as Sodium Novobiocin, Merck) and 75 mg. (125,000 units) Potassium Penicillin G; bottles of 16.*

*ne prescription the one antibiotic product most likely to be effective*

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DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

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**A.P.C. WITH Demerol® Tablets**

Each tablet contains:

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| Aspirin | 200 mg. | (3 grains) |
| Phenacetin | 150 mg. | (2½ grains) |
| Caffeine | 30 mg. | (½ grain) |
| Demerol hydrochloride | 30 mg. | (½ grain) |

Average Dose:

1 or 2 tablets.

*Narcotic blank required.*

**Potentiated Pain Relief**

**WINTHROP LABORATORIES**
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| Acetylsalicylic Acid (2½ gr.) | 162.0 mg. |
| Phenobarbital (¼ gr.) | 16.2 mg. |
| Hyoscyamine Sulfate | 0.031 mg. |
| Prophenpyridamine Maleate | 12.5 mg. |
| Phenylephrine Hydrochloride | 10.0 mg. |

Robins

# Rauwiloid®

## A Dependable Antihypertensive

## "...by far the most effective

and useful orally administered agent for reducing blood pressure . . . fully worthy of a trial in every case of essential hypertension in which treatment is thought necessary. The severe cases, which always need treatment, are as likely to respond as the mild."[1]

1. Locket, S.: Brit. M.J. *1*:809 (Apr. 2) 1955.

## An Effective Tranquilizer, too

" . . . relief from anxiety resulted in generally increased intellectual and psychomotor efficiency with a few exceptions."[2] Rauwiloid is outstanding for its *nonsoporific* sedative action in a long list of diseases burdened by psychic overlay.

2. Wright, W.T., Jr., et al.: J. Kansas M. Soc. 57:410 (July) 1956.

**Dosage:** Merely two 2 mg. tablets at bedtime.
After full effect one tablet suffices.

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Rauwiloid is recognized as basal medication in all grades and types of hypertension. In combination with more potent agents it proves synergistic or potentiating, making smaller dosage effective and freer from side actions.

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In severe, otherwise intractable hypertension this single-tablet combination provides smoother, less erratic response to hexamethonium. Each tablet contains 1 mg. Rauwiloid and 250 mg. hexamethonium chloride dihydrate. Initial dose, ½ tablet q.i.d.

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*Ferguson, J. T.: J. Am. Geriatrics Soc. *4*:1080, 1956.

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# DELAWARE STATE MEDICAL JOURNAL

*Official Organ of the Medical Society of Delaware*

INCORPORATED 1789

VOLUME 29 APRIL, 1957 NUMBER 4

## THE G.P. CAN TREAT PRURITUS ANI

## LOCALIZED BRONCHIECTASIS IS CURABLE

Complete Contents on Page iv

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## REFERENCES

(1) Finland, M.: *J.A.M.A.* 158:188, 1955. (2) Kirby, W. M. M.; Hudson, D. G., & Noyes, W. D.: *Arch. Int. Med.* 98:1. 1956. (3) Wise, R. I.; Cranny, C., & Spink, W. W.: *Am. J. Med.* 20:176, 1956. (4) Rantz, L. A., & Rantz, H. H.: *Arch. Int. Med.* 97:694, 1956. (5) Kempe, C. H.: *California Med.* 84:242, 1956. (6) Spink, W. W.: *Ann. New York Acad. Sc.* 65:175, 1956. (7) Felix, N. S.: *Pediat. Clin. North America* 3:317, 1956. (8) Altemeier, W. A.; Culbertson, W. R.; Sherman, R.; Cole, W.; Elstun, W., & Fultz, C. T.: *J.A.M.A.* 157:305, 1955. (9) Weil, A. J., & Stempel, B.: *Antibiotic Med.* 1:319, 1955. (10) Jones, C. P.; Carter, B.; Thomas, W. L., & Creadick, R. N.: *Obst. & Gynec.* 5:365, 1955. (11) Perry, R. E., Jr.: *North Carolina M. J.* 16:567, 1955. (12) Horton, B. F., & Knight, V.: *J. Tennessee M. A.* 48:367, 1955.

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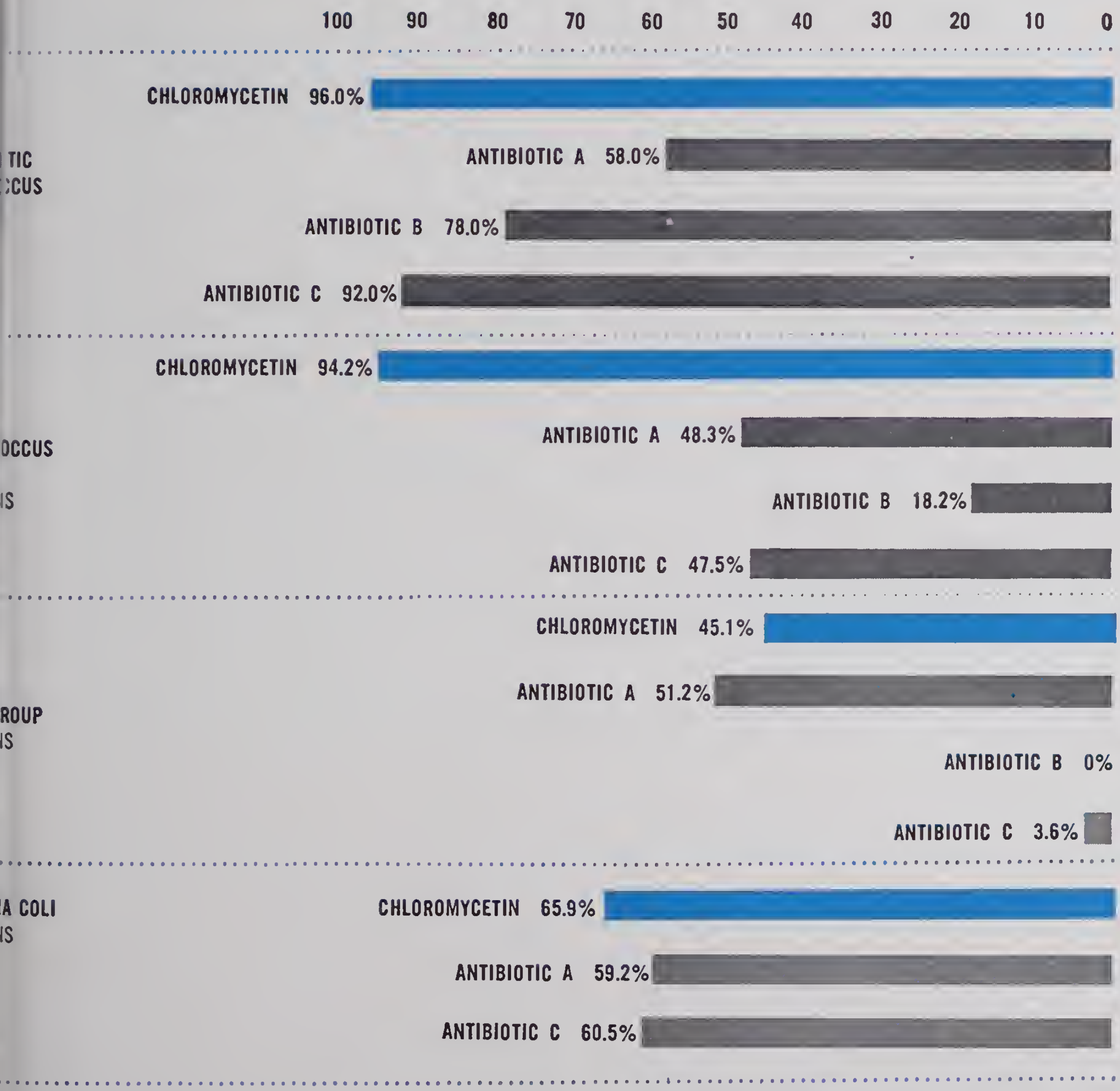

*This graph is adapted from Rantz and Rantz.[4] It is based on *in vitro* studies of bacteria freshly isolated from clinical materials.

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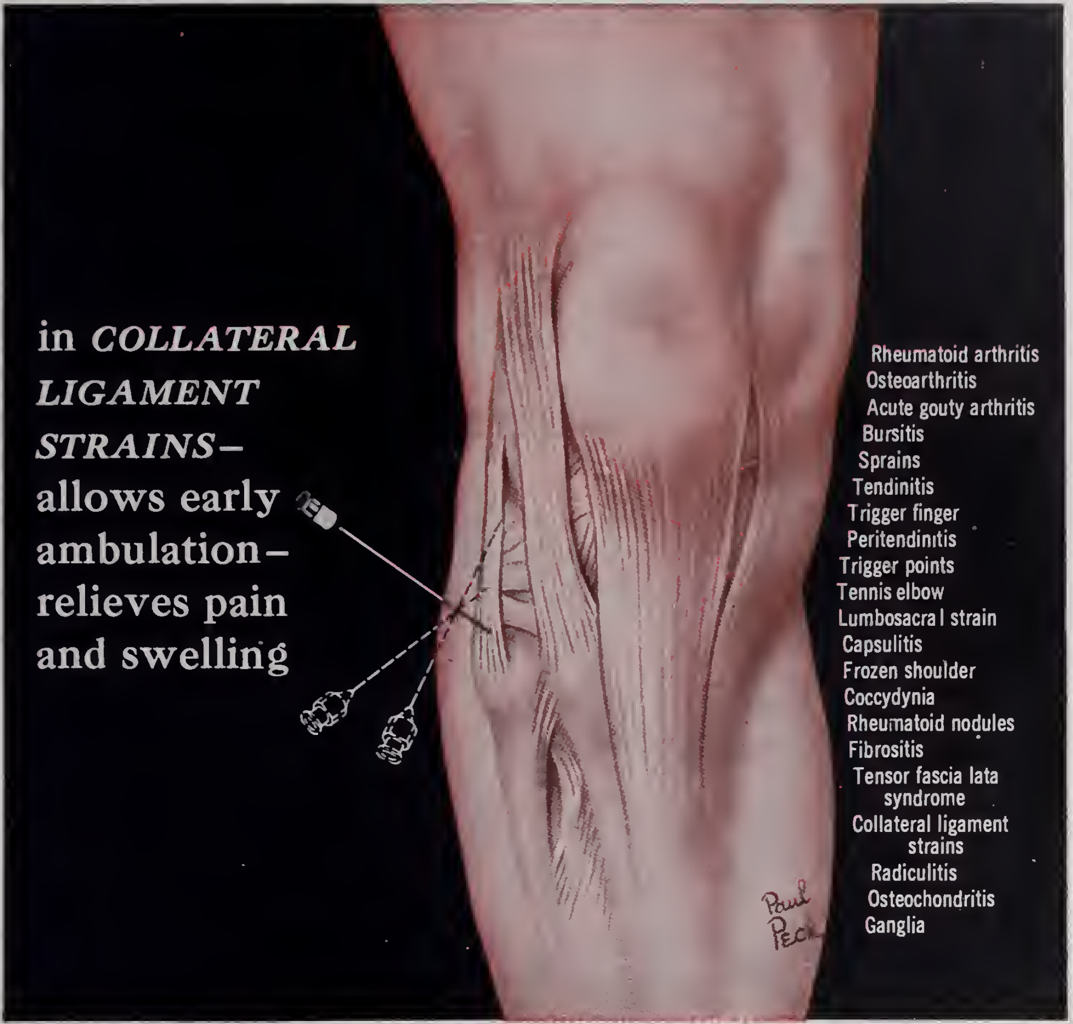

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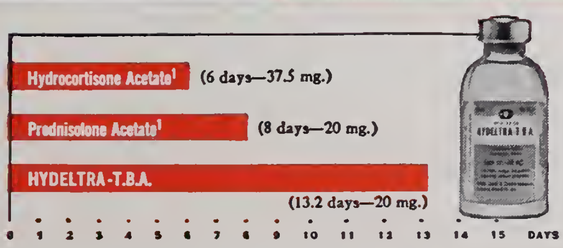

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[1] Hollander, J. L., *Paper read at conference in New York City, May 31 and June 1, 1955*

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**1.** Herrell, W. E., Erythromycin, Antibiotics Monographs, No. 1, p. 34, New York, Medical Encyclopedia Inc., 1955. **2.** Eastman, G., Cook, E. and Bunn, P., N. Y. State J. Med., 56:241, 1956. **3.** Solomon, S. and Johnston, B., Amer. J. Med. Sc., 230:660, 1955.

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[1] Carter, C. H., and Maley, M. C.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 51.

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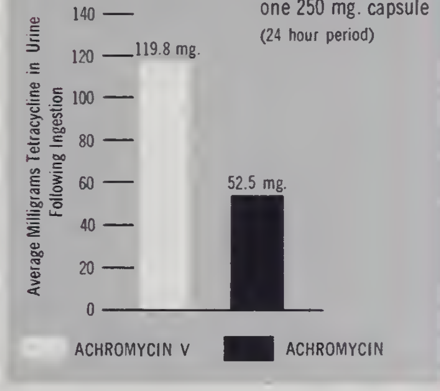

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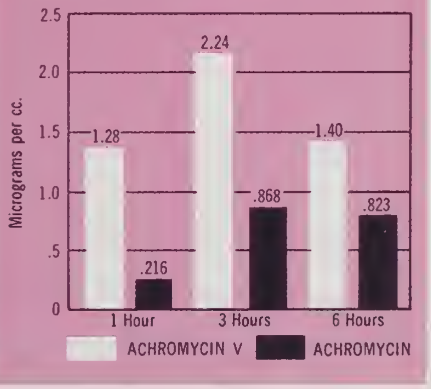

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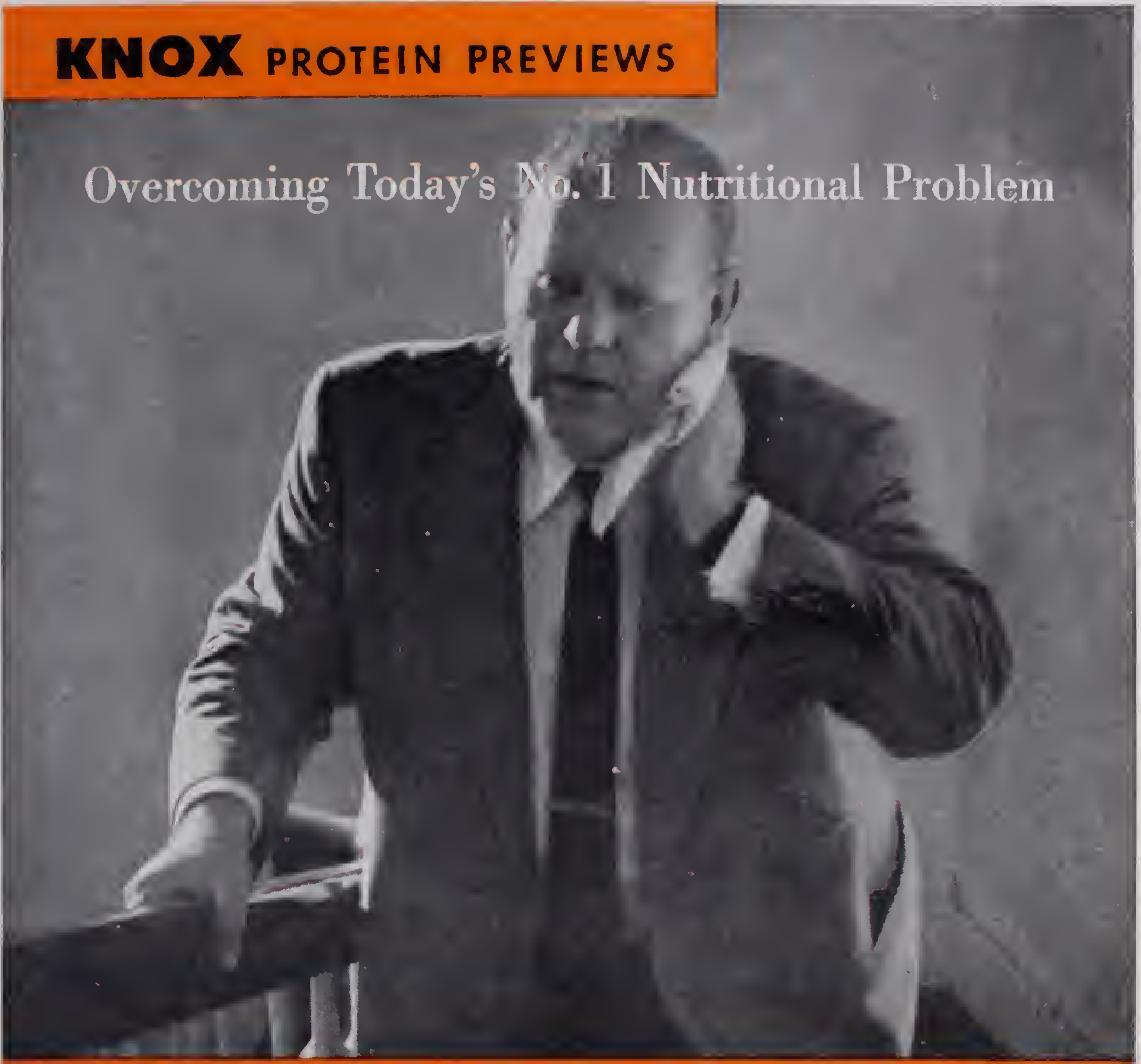

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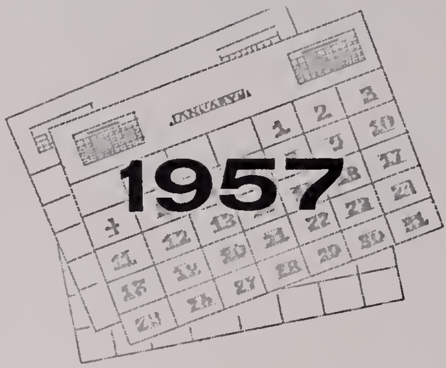

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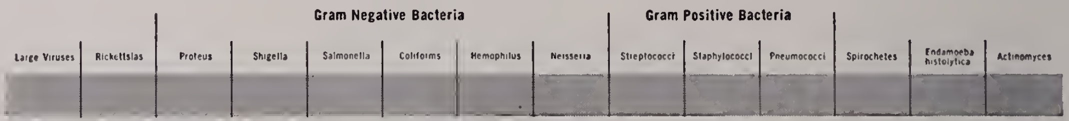

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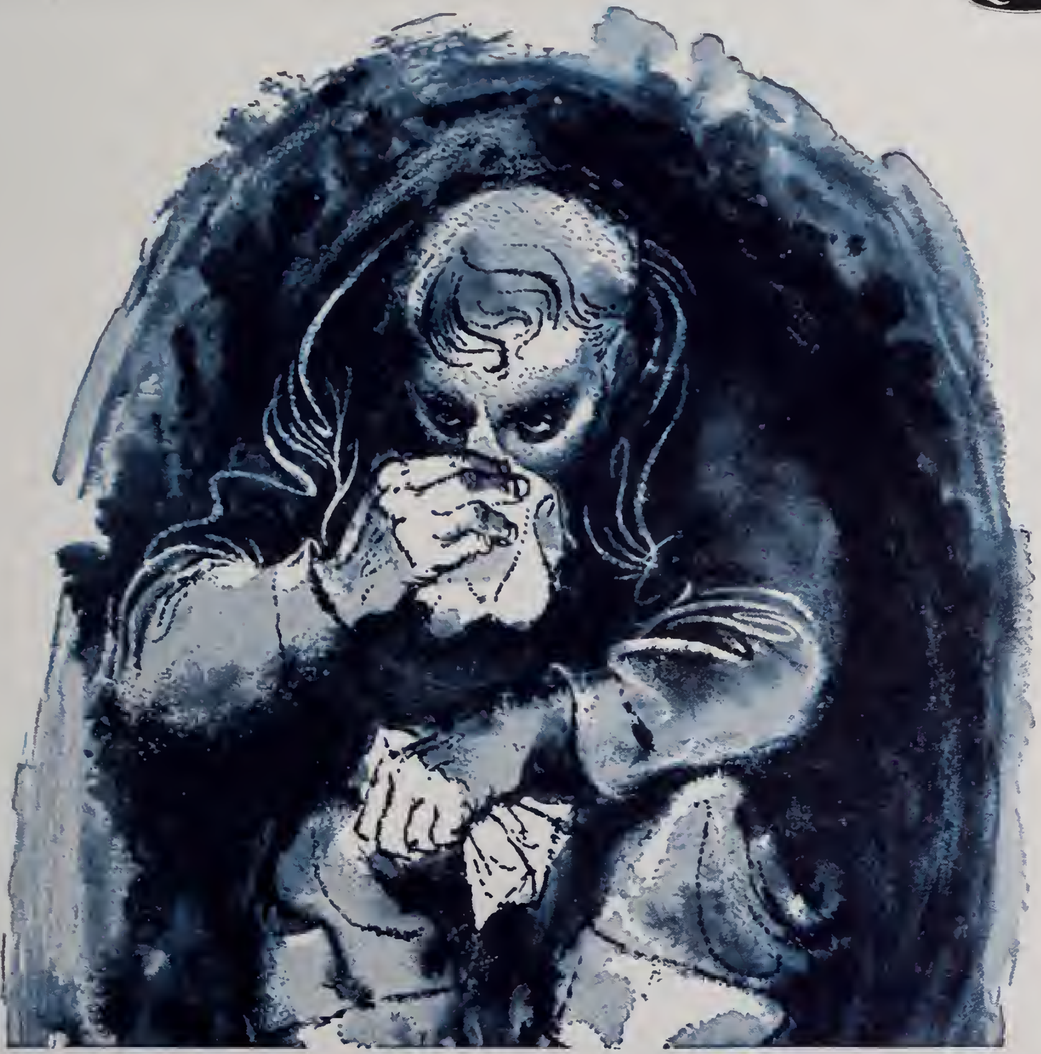

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# MANAGEMENT OF PRURITUS ANI*

CALEB SMITH, M.D.**

This paper attempts to establish a practical approach to the treatment of pruritus ani that may be of value to the general practitioner. It is not a comprehensive review of the subject, and only those theoretical aspects that bear directly on treatment will be considered.

Pruritus ani is a symptom, not a disease. Its treatment is best approached through a somewhat empirical classification of its etiology, as follows:

1. NEUROGENIC PRURITUS ANI. The cause of this type of pruritus ani is thought to be emotional stress. Often the stress is not considerable, but the patient's nervous system is a sensitive one. Unhappily, this type of pruritus ani accounts for at least 45% of the cases. Some observers place the figure as high as 70%.

2. PRURITUS ANI SECONDARY TO SURGICAL CONDITIONS OF THE ANORECTAL AREA. This group comprises about 25% of the cases. Any anorectal lesion which tends to increase moisture locally, and hence promote maceration, is apt to cause pruritus. The following lesions are common offenders: Fissures, fistulas, draining sinuses, ulcers, mucosal prolapse, papillitis, cryptitis, skin tags, hemorrhoids, and neoplasms.

3. PRURITIS ANI SECONDARY TO DERMATOLOGICAL LESIONS. This group accounts for about 20% of the cases. The following conditions are commonly implicated: Psoariasis, lichen sclerosis, syphilis, and dermatites of the seborrheic, bacterial, mycotic or contact types.

4. PRURITIS ANI SECONDARY TO GENERAL CONDITIONS. This group accounts for about 10% of the cases. The following states are commonly associated with pruritus ani: Diabetes, liver diseases, parasitic infestations of the intestinal tract (particularly pinworms), lymphomas, untoward reactions to antibiotics, genitourinary diseases (especially prostatitis and diseases associated with a vaginal discharge), any condition that causes chronic soft stools, poor hygiene, and allergy to hygienic pads, deodorants, foods, and the so-called -caine drugs.

Before treating pruritus ani, a serious effort should be made to establish a definite cause for the itching by means of a careful history, examination, and laboratory studies. If a diagnosis of secondary pruritus ani can be made, specific therapy may be available. Two practical points should be made, however. Pruritus ani resembles causalgia in that the longer it persists, the more difficult it is to relieve. It is almost impossible to relieve severe pruritus ani that has been present for more than two years. Therefore, patients with secondary pruritus ani should receive prompt treatment. Also, more than an occasional patient has secondary pruritus ani with a neurogenic element in it. For example, the patient with neurogenic pruritus ani and an annoying perianal skin tag may not be relieved by removal of the skin tag alone; he will also need treatment for his neurogenic pruritus ani.

It is the patient with neurogenic pruritus ani who presents the difficult problem. However, most of these patients will get satisfactory relief if they are treated intelligently and diligently.

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When the diagnosis of neurogenic pruritus ani has been established by exclusion (with experience one develops a high index of suspicion for neurogenic pruritus ani, but cannot depend on his hunch completely), the first step is to discuss the condition with the patient and give him an insight into his pruritus. Once this has been accomplished, the patient becomes much more tractable. A discussion of stress and sensitive nervous systems is beyond the scope of this paper, but a few practical points are worth mentioning. A patient should be made to realize that because he has a sensitive nervous system he is not necessarily inferior. Many of the people who have contributed greatly to the welfare of the world have had such nervous systems. Darwin, for example, was said to have such a sensitive nervous system that he was unable to have guests for dinner without being disabled the following day with diarrhea. Also, the patient should be given to understand that although there is always the possibility of the itching recurring, the longer he can keep it relieved by faithful treatment, the less apt it is to recur.

The next step is to help the patient understand pathological itching. Itching is a modified pain sensation. Physiologic itching travels over epicritic pain pathways, and is not an unpleasant sensation compared to pathologic itching. The latter travels over protopathic pathways, and is characterized by a burning, persistent, poorly localized, very unpleasant sensation. A patient with pathologic itching has a strong and natural desire to scratch. He must understand that when he scratches he does not relieve his pathologic itching, but merely replaces it in his sensorium with the less unpleasant epicritic pain, or itching. After scratching there is always a heavy discharge of impulses over the protopathic pathways, and the pathologic itching is aggravated. *Scratching perpetuates pathologic itching, and little can be done for the patient who will not give up scratching.* Fortunately, there is an easy method of relieving severe itching temporarily: cold water applied to the pruritic area will bring relief without later aggravating the itching. Heat in any form, it should be noted, decreases the threshold to pathologic itching and should be avoided. One patient was considerably relieved by shutting off the heater beneath the seat of his automobile. It is worth emphasizing that the patient who has given up scratching has made one big step toward the permanent relief of his pruritus ani.

Good hygiene is the next step. The patient with pruritus ani must keep his perineum scrupulously clean, and he must be given explicit instructions about perianal hygiene. The usual procedure in using toilet tissue is to use a rubbing motion. Once the patient with pruritus ani starts this motion, he is bound to lose control of himself and rub vigorously; the result is scratching. The patient with pruritus ani must use a soft toilet tissue and "pat" himself clean. The first tissues should be dry; the next one or two should be wet with cold water; and subsequent tissues should be dry. Ordinary soaps should be avoided because alkalinity lowers the threshold to itching. The patient should be advised to use cool water and a surgical preparation containing hexachlorophene 3%, with a pH the same as that of the skin. Thorough cleansing should be done each night, and, if practicable, after each bowel movement.

Simple as the foregoing care is, it is the foundation for the successful treatment of pruritus ani.

Now for what should be "put on". The patient with longstanding pruritus ani has used so many preparations locally that one is apt to get a better result by stopping all medication than by prescribing one more ointment. Also there are several things that should not be used. The anesthetic ointments of the -caine type and anthistaminic ointments should be avoided as they commonly cause a sensitivity reaction which aggravates the itching. At the moment the market seems flooded with new anesthetic ointments that are said to cause little sensitivity. I rarely use them. Among the more effective preparations for local application are the following: (1) a lotion of ethyl alcohol containing 1% salicylic acid and 1% camphor, and (2) an ointment composed of menthol 0.2 gm., phenol 0.3 gm., salicylic acid 1.0 gm., benzoic acid 2.0 gm., and Acid Mantle Creme (Dome) 60.0 gm.

Both these preparations are used on an empirical basis while the patient is learning to help himself, although both are reasonably effective against fungus infection, which is common. They should be applied each morning and evening after washing with the soap-substitute. The patient should be warned to use them sparingly because they cause a sharp burning sensation. After a few days, desquamation and relief of itching usually occur, and the patient suffers less burning when they are applied.

Patients with pruritus ani usually appreciate a sedative. Barbiturates are proscribed because they are apt to aggravate itching. Chloral hydrate or one of the tranquilizers are effective drugs.

The patient who does not respond to these simple measures within a month is a candidate for more active therapy. Steroids locally should be tried next. An ointment or cream containing Hydrocortisone Acetate 0.5% and Neomycin Sulfate 0.5% is one of a number of satisfactory preparations. Here again, explicit directions are necessary to obtain a good result. The ointment should be applied twice daily after cleansing the perianal skin with the soap-substitute and cool water. A small amount of the ointment, about the size of a pea, is sufficient for one application. The ointment should be rubbed in thoroughly but not vigorously. It is important not to discontinue the ointment abruptly, or recurrence is almost a certainty. Above all, the simple measures described previously should not be neglected. Many of the failures following the use of steroid ointments are due to their improper use and to neglecting of the general measures.

In extremely intractable cases steroids systematically should be tried. Here again, general measures should not be neglected and the steroid should be withdrawn gradually.

Finally, a few words can be said profitably about some of the methods of treatment that have limited usefulness. Tattooing of the perianal skin has been almost completely abandoned. Surgical operations designed to undercut the perianal skin and divide the subcutaneous nerves are rarely indicated; usually relief is obtained for about nine months, followed by a recurrence that is harder to treat than the original lesion because of the atrophy of the undercut skin. X-ray treatment gives excellent temporary relief, but here too recurrence with atrophic skin is so common that it has been largely abandoned. Alcohol injections under the perianal skin are used by a few proctologists; this method does have merit in selected cases, but a meticulous technique must be followed to get a good result and avoid troublesome complications. Sympathectomy has been used in a few severe cases with promising results. Psychiatric treatment has brought relief to some patients when all else has failed.

### Summary

Accurate etiologic diagnosis is essential for the proper treatment of pruritus ani. If it is secondary to surgical, dermatological or general conditions, removal of the primary condition may be possible. Forty-five to 70% of the cases, however, are primary or neurogenic. Little can be done for the patient who will not give up scratching. A regimen has been outlined, however, that frequently is successful in the cooperative patient.

# LOCALIZED BRONCHIECTASIS IN THE ADULT PATIENT[*]

JOHN J. REINHARD, JR., M.D.[**]

LORING E. SYLVESTER, M.D.[***]

Localized bronchiectasis in the adult is a commonly encountered disease on a Thoracic Surgical Service. It is, however, frequently unrecognized since hemoptysis and recurrent upper respiratory infections may be the only symptoms. Because localized bronchiectasis often does not cast a shadow or displace the pulmonary contents on the chest x-ray, the diagnosis may remain obscure. Treatment with antibiotics may cause a prompt subsidence of the febrile episodes and further serve to hide the underlying pathologic process. Bronchoscopic examination in these cases is usually noncontributory except as an aid in determining the site of hemorrhage. Bronchography of all the bronchial segments is essential to make an accurate diagnosis and to plan therapy. In contrast to the multicentric bronchiectasis seen in children, the adult localized form readily lends itself to surgical resection and has an excellent prognosis.

We have observed this process in six patients in the last two years, all of whom have undergone surgical resection with pathologic examination of the diseased lung tissue. All of these patients first consulted a physician because of hemoptysis; five of them had recurrent bouts of hemorrhage. It is of interest that the routine antero-posterior and lateral chest x-rays were comparatively normal in five cases. The sixth patient had minimal roentgenographic changes in the lingula of the left lung. Bronchoscopic examination revealed normal findings in three of our patients. One showed bleeding from the left lower lobe, one purulent secretions from the left lower lobe, and one had granulation tissue in the right lower lobe. The diagnosis of localized bronchiectasis was not established prior to bronchography in any of the cases.

Reports of four illustrative cases follow:

Case No. 1: A 41 year old white man was admitted to the hospital because of recurrent hemoptysis with a productive cough. He gave a history of pneumonia in August 1955 with fever, cough and pain in the left lower chest. He was studied at that time in another institution where bronchoscopy was negative and the routine antero-posterior and lateral x-rays of the chest were read as being completely normal. He was finally discharged from the hospital with a diagnosis of bleeding from the pharynx. He was admitted to the Memorial Hospital in January 1956 having had several more bouts of hemoptysis, varying in amount from a teaspoon to half a cup. Physical examination was entirely negative, bronchoscopy was normal, but a bronchogram showed bronchiectasis of the basilar segments of the left lower lobe. Massive pleural adhesions about the left lower lobe were found at operation and a left lower lobectomy was performed. The pathologic examination revealed a sacculated bronchiectasis of all the basilar segments. The patient was discharged from the hospital eleven days after admission and has resumed his normal activities.

Case No. 2: A 35 year old white woman was admitted to the hospital because of recurrent bouts of hemoptysis over a six year period. Her first bout of hemoptysis was in 1950, approximately three months after a tonsillectomy. She had repeated severe episodes of bleeding; these increased in

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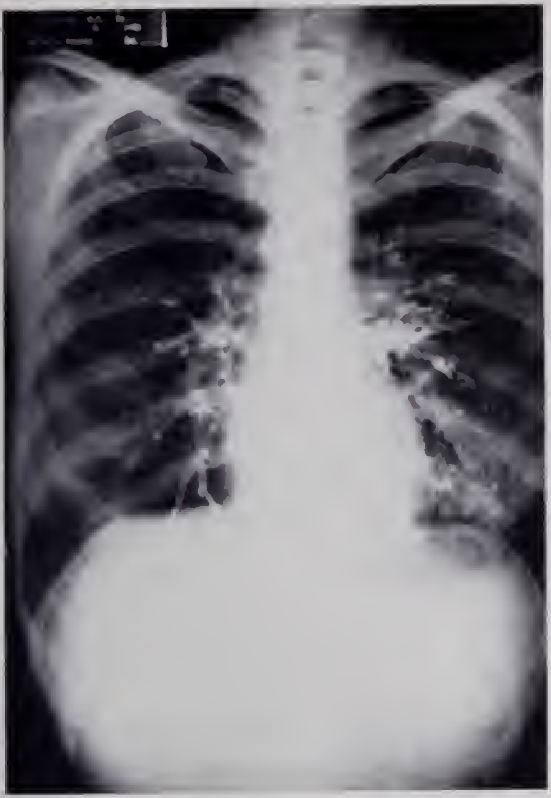

Figure 1—Bronchogram of patient No. 2 showing severe saccular bronchiectasis of the superior segment of the left lower lobe.

frequency. At times she would cough up as much as a pint of blood. She remained asymptomatic between attacks of hemorrhage. She was studied in another city where bronchoscopy and routine chest x-rays showed no abnormality and she was discharged without a definite diagnosis. On admission to the Memorial Hospital, although bronchoscopic findings were comparatively normal, a bronchogram revealed severe saccular bronchiectasis in the superior segment of the left lower lobe. (Figure 1.) The patient had a left lower lobectomy and was discharged from the hospital eight days following surgery. She has resumed her occupation of running a small bakery and has remained asymptomatic to date.

Case No. 3: A 53 year old white woman was admitted to the hospital on September 7, 1955 complaining of repeated episodes of hemoptysis, recurrent upper respiratory infection and large amounts of purulent sputum. The hemoptysis occurred after she had pneumonia in 1938, and after recurrent bouts in 1940 and 1954. Physical examination was normal on admission; her chest x-ray was entirely normal but a bronchogram done on September 12, 1955 showed a lack of filling of the distal lingular bronchi. On September 27th a right bronchogram was negative. She then underwent, without incident, a segmental resection of the lingula on the left side; pathologic examination revealed severe bronchiectatic cylindrical and saccular change in the lingular bronchi of the left upper lobe. The patient was discharged from the hospital nine days after surgery and has had no postoperative complications. She resumed her duties as a housewife and has remained asymptomatic.

Case No. 4: A 28 year old white man was admitted to the hospital with a history of weakness, malaise, a cough productive of foul smelling sputum, recurrent febrile episodes and occasional hemoptysis. These complaints had been present for two years. He had developed clubbing of the nails six months previous to admission and had been

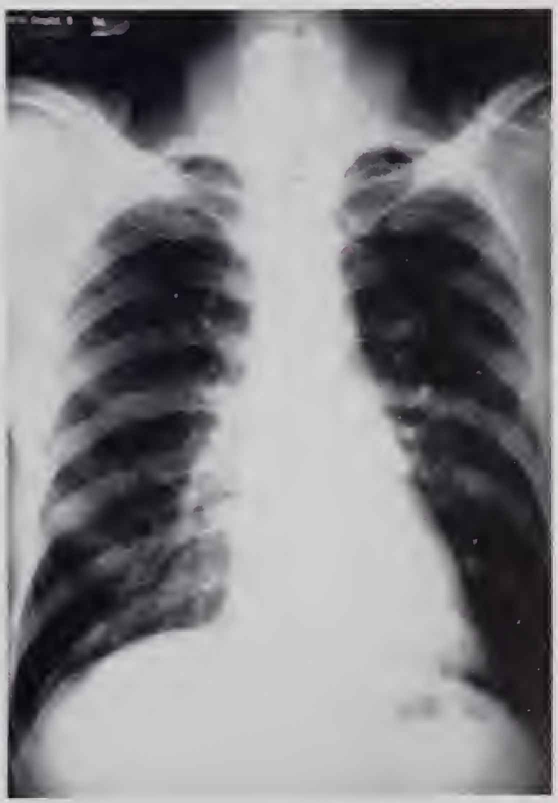

Figure 2—Patient No. 4—routine chest x-ray showing no abnormalities of significance.

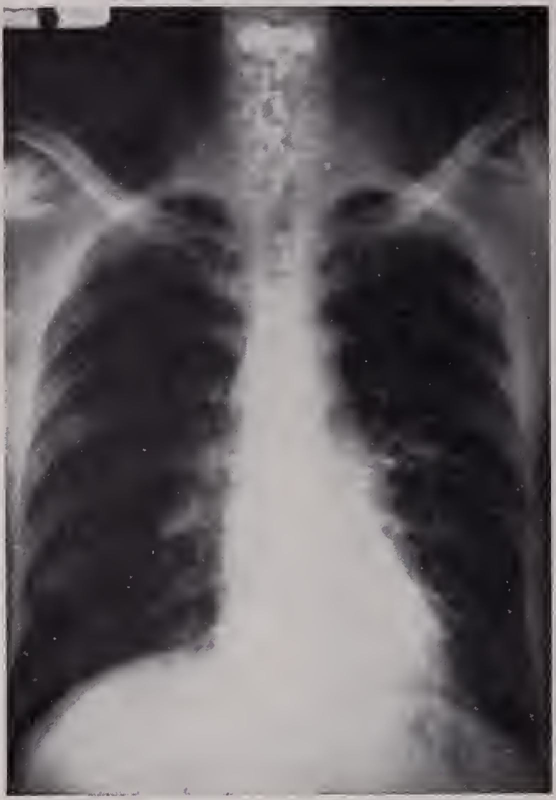

FIGURE 3—Patient No. 4—bronchogram showing bronchiectasis of basilar segment of left lower lobe.

studied elsewhere at which time bronchoscopy and bronchography had demonstrated bronchiectasis. Conservative management failed. A chest x-ray (Figure 2) was negative but bronchoscopy and a bilateral bronchogram (Figure 3) revealed bronchiectasis in the left lower lobe. At operation, massive adhesions were found about the left lower lobe which presented infiltration and thickening of all its basilar segments as well as marked hilar lymphadenopathy. Pathologic examination confirmed the presence of bronchiectasis involving all the basilar segments. His postoperative recovery was uneventful.

## PATHOGENESIS OF LOCALIZED BRONCHIECTASIS

Although inflammation and its sequelae are the basic mechanisms for the production of bronchiectasis, be it diffused or localized, there are ancillary factors which in any given case may limit its inception and progression to a localized area. Certainly, foreign body aspiration with prolonged retention is such a factor and the history of such an episode strengthens one's confidence in the findings of localized disease on bronchography and permits an optimistic outlook following surgery. With this mechanism, the resulting lung abscess may blend with bronchiectasis. Other conditions such as compression by lymph nodes or tumor, broncholiths and bronchostenosis which produce partial or complete obstruction of the smaller bronchi will give the same result.[1]

On the other hand a relatively diffuse process recorded clinically as "pneumonia" or "influenza" may yet leave its mark only on a portion of the affected area. This is due to local necrosis or failure of resolution and lack of reaeration of the lung tissue. Multiple cavities may coalesce, their walls epitheliaze, and surrounding inflammation subside leaving few clues as to the original event. Poor local drainage, fibrosis and unaerated lung may perpetuate the inflammatory process. Granulation-lined cavities with their abundant secretions may themselves interfere with drainage and infect adjacent tissue and thus the process spreads by contiguity.

The predilection of bronchiectasis for the lingula, right middle lobe and basal segments of the lower lobes is mute evidence of the effect of gravity and the importance of drainage. Again, their effect tends to restrict the process to the immediate bronchopulmonary system. Of our six patients, four had involvement of the left lower lobe and one each the right lower and left upper lobes.

Whether developmental factors play their part in localized bronchiectasis is conjectural although Schwartz and Katz[1] suggest this may be true. Certainly it may be difficult to differentiate in some cases between congenital bronchogenic cysts and markedly dilated thin walled bronchiectatic cavities when the tell-tale inflammation has subsided.

## DISCUSSION

Since Laennec first described bronchiectasis in 1819 and Sicard and Forestier introduced the endobronchial iodized oil bronchogram in 1922, the clinical opinion regarding bronchiectasis has undergone waves of enthusiasm for surgical resection. Many authors have differentiated between childhood bronchiectasis, with its progressive inexorable course, and that occurring in the adult which tends to remain localized for years. At the Mayo Clinic, Cooley, et al[2], stressed that surgical results were much poorer in children, with 16.6% of surgically resected cases developing new bronchiectasis. In their series of cases followed five years only 60% could be credited with receiving a good result. In contrast, Ginsberg[3], in reviewing all the cases, regardless of age, at the Mayo Clinic, showed 76% good results following surgical extirpation. He stressed the fact that residual disease after surgery is the most significant factor affecting the prognosis. Lindskog[4] gave an excellent summary of the criteria for surgery: 1) Symptoms severe enough to cause discomfort, inconvenience and complications. 2) Proven and localized bronchiectatic changes by bronchography. 3) An adequate cardiorespiratory reserve and 4) No contraindications from concurrent disease. Meade's[5] series from the Kennedy General Hospital demonstrates how low the surgical mortality rate may be. (0.5%)

Three of our patients were previously hospitalized at other institutions and discharged without the diagnosis of bronchiectasis being made because routine chest x-rays and bronchoscopy were normal. All of the patients were healthy adults, the youngest being 22 and the oldest 53 years of age. Four lobectomies and two segmental resections were performed without incident and there were no postoperative complications. The patients have been followed six to twenty-four months and all have resumed their former duties with no signs or symptoms of residual disease. There has been no incidence of postoperative hemoptysis, pneumonitis, or abnormal sputum production.

## SUMMARY

Bronchiectasis which has remained confined to a lobe or segment of a lobe is a disease which may be attacked surgically with a confident expectation of a complete cure. Hemoptysis, increased purulent sputum and recurrent upper respiratory infection should always suggest the possibility of bronchiectasis. Bronchoscopy and routine chest films are inadequate tools with which to rule out this condition. Bronchography is necessary to confirm the diagnosis and accurate mapping of all bronchial segments is essential to plan the surgical resection.

## CONCLUSIONS

1. Adult localized bronchiectasis in contrast to the childhood type has an excellent prognosis if surgical resection is utilized.

2. Hemoptysis, recurrent upper respiratory infection and abnormal amounts of purulent sputa are the symptoms most frequently found.

3. Bronchography is necessary to make a diagnosis of localized bronchiectasis.

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# EARLY PRIMARY PERITONEAL PREGNANCY*

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ALBERT GELB, M.D.****

Ectopic pregnancy has been a frequently discussed subject. Since January 1954, 447 articles have appeared in the literature dealing with all phases of extrauterine pregnancy. Primary peritoneal pregnancy is a rare entity and the literature contains only a few articles on the subject.

The validity of the concept of primary peritoneal nidation is difficult to prove. Most abdominal pregnancies have been attached to the uterus, ovaries, or Fallopian tubes, and have been considered tubal abortions with secondary peritoneal attachment. Advanced abdominal pregnancies have been reported in which attachment has occurred at a distance from the pelvic organs, but these have been difficult to authenticate as being primary. Many have theorized that the fertilized ovum will attach only to tissue of Müllerian origin.

Studdiford[1], in 1942, reported a case of abdominal pregnancy in which, although placental attachment had occurred on the posterior surface of the uterus, no connection with the endometrial cavity could be found. The gestational age was estimated at four weeks, making secondary implantation highly improbable. He advanced the following criteria for proof of primary peritoneal pregnancy:

1) That both tubes and ovaries are normal with no evidence of recent or remote injury,

2) the absence of any evidence of uteroperitoneal fistula, and

3) the presence of a pregnancy exclusively related to the peritoneal surface, and young enough to eliminate the possibility of secondary implantation following a primary nidation in the tube.

Best[2] had stated essentially the same criteria in 1931, with the exception of the gestational time element, but not until the report of Studdiford's case was the concept of nidation of the blastocyst upon the peritoneum accepted.[3,4]

Abdominal pregnancy of any type is unusual. Beacham[5] states that it occurs in white females once in 11,419 live births, and once in 685 live births in the Negro race. Douglass and Kohn,[6] however, say that it occurs much less frequently; once in 67,534 births in the white race, and once in 4,188 births in the Negro race. Ahnquist and Lund[7] list only ten cases of primary peritoneal pregnancy in their comprehensive presentation of the subject.

## CASE REPORT

An eighteen year old white woman was admitted to the surgical service at the Memorial Hospital on March 12, 1957, after being seen in the Emergency Ward. She had been in perfect health until 36 hours prior to admission, at which time she noted crampy lower abdominal pain, more severe on the left. Moderate difficulty in walking was associated with the pain. The patient denied shoulder-top pain. There had been no gastro-intestinal disorder, fever, urinary complaint, or vaginal discharge or bleeding. The last normal menstrual period had occurred January 29th. The last menstrual period had begun February 26th but had lasted only two instead of the usual five days. This had been attributed to fatigue associated with a long automobile trip. The systemic review was non-revealing. The previous history included one normal pregnancy.

The family physician was called about 12 hours after the onset of the illness. He found the pulse to be 140 per minute, but his examination revealed no other positive findings. At this time members of the family thought that she was very pale.

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The crampy pains continued and became progressively severe. They were accompanied by nausea and finally, vomiting. The family physician found a tachycardia of 160 per minute and a systolic blood pressure of 70 mm Hg. A marked increase in pallor was noted. The patient was sent to the hospital.

On examination, the patient was extremely pale but was in no acute distress. The pulse was 140-156 per minute and although regular, was greatly decreased in volume. The blood pressure was 90/40. The temperature was recorded at 100.6°F. The positive physical findings were limited to the abdomen which was slightly full. Striae gravidarum were present. There was pain localized in the left supra-pubic area. This was aggravated by deep inspiration and cough. There was generalized muscle guarding in the lower abdomen, with rebound tenderness in the left lower quadrant. Peristalsis was present. The tentative diagnosis of ectopic pregnancy with intra-peritoneal hemorrhage was made, and because of the danger of causing further bleeding, a pelvic examination was not done. A rectal examination revealed a slightly tender mass of spongy consistency and indeterminate size occupying the cul-de-sac.

Intravenous Dextran was started immediately as an emergency blood volume expander, and preparations were made for laparotomy. Laboratory studies revealed the hemoglobin to be 7.2 Gm. /100 ml., rbc 2.78 million/ccm, and the hematocrit 24.4%. The wbc was 36,950, segmented forms 78%, non-segmented forms 14%, and lymphocytes 8%. Urinalysis was normal except for 100 rbc/hpf and a trace of albumin. Transfusion with whole blood was begun immediately prior to surgery.

The patient was given endotracheal cyclopropane-ether anesthesia with succynilcholine chloride. The abdomen was quickly opened through a lower midline vertical incision. As the peritoneal cavity was opened, revealing 1500-2000 cc of liquid and clotted blood, the pelvic organs were immediately elevated into the wound for inspection. The uterus, ovaries, and tubes were found to contain no evidence of ectopic or intrauterine pregnancy. After aspiration of blood from the pelvis, a mass of clotted blood and tissue was removed from the cul-de-sac. The bleeding point was then located on the left postero-lateral peritoneum of the cul-de-sac, where there was a 2.5 cm. diameter placque of brownish-red friable tissue adherent to the peritoneum. Attempts were made to control the bleeding with hot moist packs. The removed tissue mass was then closely inspected and found to consist of blood clot, placental tissue, and a fetus contained in an intact amniotic sac. The bleeding point was again inspected, and because the bleeding could not be controlled, the area was excised. After reperitonealization, the operative field was dry. Prior to closure of the wound, the Fallopian tubes were again closely inspected, but no evidence of a pre-existing tubal pregnancy could be found.

The fetus measured 3.2 cm, in total length, an estimated gestational age of six or seven weeks. Histologic examination of the excised peritoneum revealed adherent placental tissue. A post-operative Friedman test was positive.

The post-operative course was uneventful. The pulse rate returned to normal after transfusion of 2000cc whole blood. The patient was discharged from the hospital on the sixth post-operative day.

## Summary

A short summary of the literature concerning primary peritoneal pregnancy is presented with a case report of what we believe to be an undisputable instance of primary peritoneal nidation in that it satisfies the criteria set forth by Studdiford.

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# ASEPTIC NECROSIS OF THE FEMORAL HEAD DUE TO SICKLE CELL - THALASSEMIA DISEASE*

## Case Report

C. S. Papastavros, M.D.**

Differentiation of sickle cell anemia and sickle cell trait associated with anemia due to other causes was, until recently, difficult or even impossible. Accurate diagnosis is important since sickle trait is a benign disease while sickle cell anemia runs a more stormy course with hemolytic anemia, "crises", jaundice, and early death.[13]

It has been shown[9,13] that the red cells of individuals with sickle cell trait contain normal and sickle hemoglobin, while the ones from patients with sickle cell anemia contain only abnormal hemoglobin. The type of hemoglobin present is easily differentiated by electrophoresis.

Reich and Rosenberg[12] reported three cases of aseptic necrosis of bone in Caucasins with chronic hemolytic anemia due to combined sickling and thalassemia traits. They are the only reported cases, to our knowledge, presenting bony changes. Several authors (Powell, Rodarte, Neel) have reported a total of fifteen cases of sickle cell-thalassemia disease without definite evidence of aseptic necrosis of bone.

Smith and Conley[13] reported four cases of sickle cell-thalassemia and 16 cases of sickle cell anemia hemoglobin C disease. Four of their patients showed osteochondritis of the femoral head apparently due to aseptic necrosis. They stressed the fact that none of their patients with sickle cell anemia showed aseptic necrosis of bone. Tanaka et al[14] reported six patients with sickle cell anemia (homozygous S), proven by electrophoresis, who had aseptic necrosis of the femoral head.

### Case Report

The patient, a thirty-eight year old white man of Greek descent, entered the hospital with the chief complaint of pain in his right hip. He had a long history of difficulty with his back and lower extremities. His hip pain had been persistent for one year. X-rays done prior to admission were reported to reveal some bone disease in the region of the right hip and he was admitted for examination by biopsy.

He had a history of splenectomy when he was 13 years old for anemia. Full details were not available.

Physical examination was not remarkable except for some limitation of abduction of the humerus bilaterally, loss of motion of the right thigh, and tenderness to palpation over the right hip area.

There were 4.9 million red blood cells with 13.1 Gm. hemoglobin. There were 14 nucleated red blood cells per hundred white blood cells. Pathological report of the biopsy from the right femoral neck showed granulation tissue with no bony pathology. The patient was discharged from the hospital.

Six months later he had 4.6 million red blood cells with 13.6 Gm. hemoglobin and 11 nucleated red cells per hundred white blood cells. His white cell count was 15,500. The stained smear showed one metamyelocyte, many target cells, 2+ stippling, 3+ achromia and strongly positive sickling with sodium bisulphate.

The electrophoretic pattern was run on several occasions and it was the final conclusion that in addition to the very prominent amount of sickle hemoglobin there

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* From the Department of Roentgenology, Memorial Hospital.

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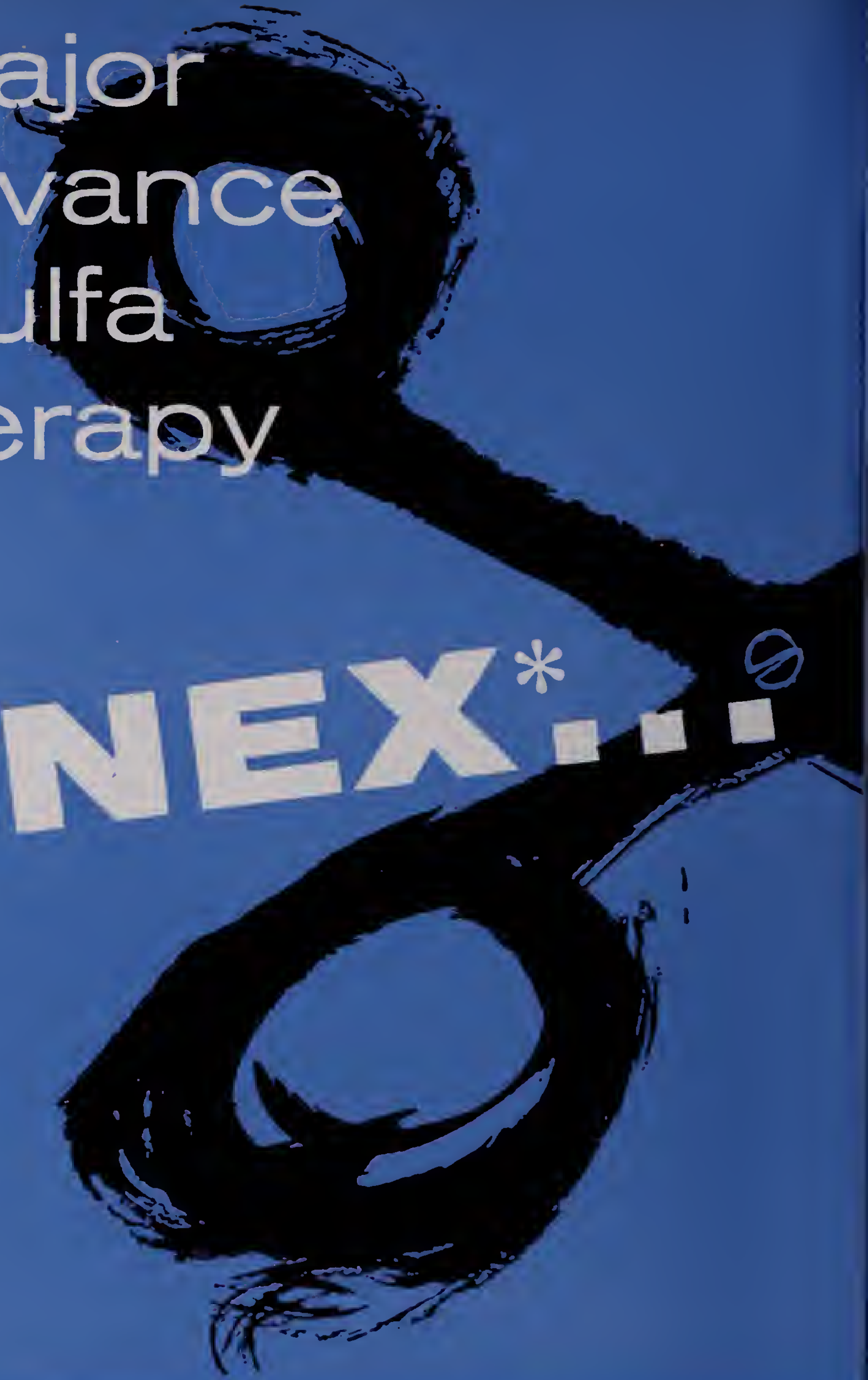

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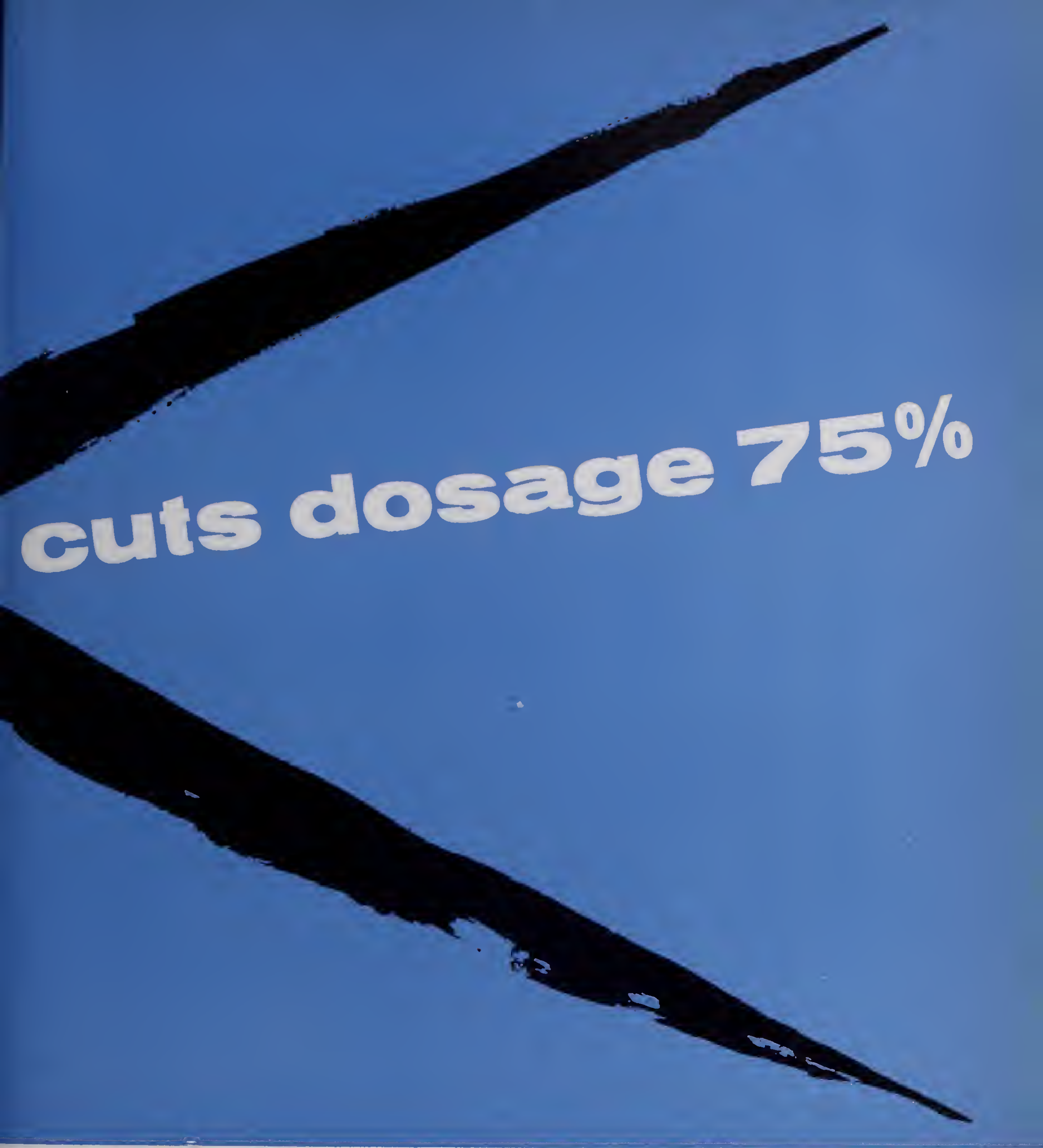

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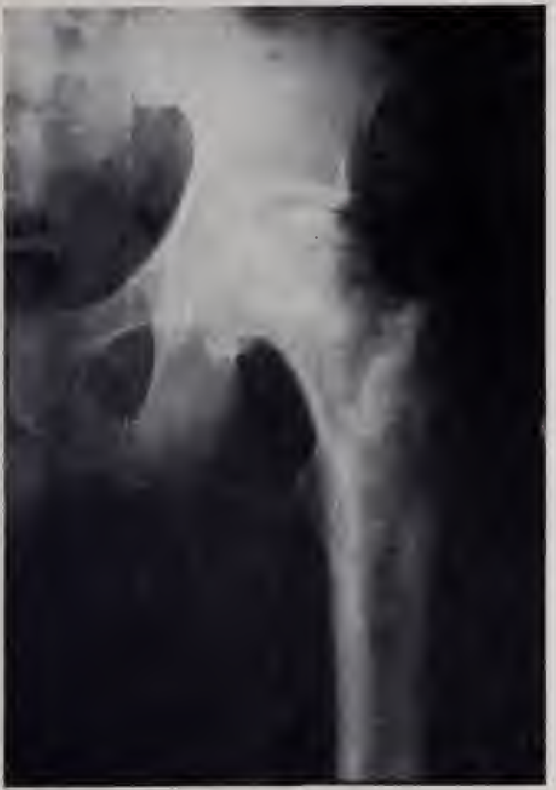

Fig. 1—Aseptic necrosis of the right femoral head. Loss of normal rotundity of the head with evidence of sequestrum formation and sclerosis of the bone.

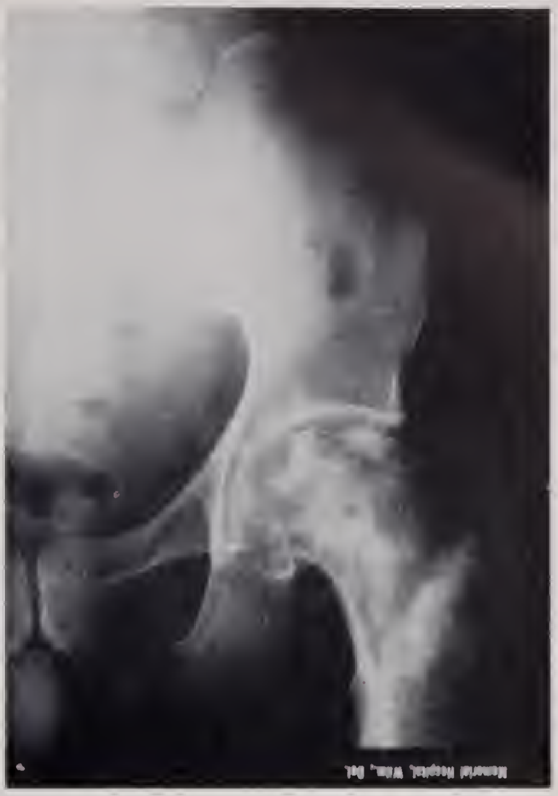

Fig. 2—Progressive changes with deformity and flattening of the head of the right femur.

was evidence of a small amount of normal A hemoglobin representing perhaps 10 or 15% of the total. Fetal hemoglobin determination showed a value slightly over 5.5% which is distinctly abnormal.

X-ray findings eight months prior to admission showed an osteoblastic reaction in the head of the right femur. Later films showed the osteoblastic activity, with areas of decreased density interspersed between these thickened areas. Films taken one year after the initial studies showed evidence of loss of the normal rotundity and smoothness of the right femoral head indicating a necrotic type of involvement. This was thought to be aseptic necrosis associated with evidence of a depressed sequestrum and sclerotic adjacent bone (figure 1).

Re-examination sixteen months later revealed further destruction of the head of the right femur with fragmentation and flattening of the weight bearing portion of the femoral head and secondary hypertrophic arthritic changes about the joint (figure 2). Recent x-rays of the shoulders showed changes in the left shoulder similar to those found in the right femur.

## Discussion

Capillary thrombosis resulting in infarction[7-12] of the involved bony area, presumably, is responsible for the aseptic necrosis in sickle anemia. Phemister[10,11] described the changes in bones and joints resulting from interruption of circulation and postulated that changes in the density of the bone in necrosis may result from "atrophy of disuse, from creeping replacement of dead bone by new bone, from pathologic fractures, and collapse of the dead bone bordering on joints, from compression of dead trabeculae, from infiltration of bone sand into the dead marrow spaces, and from calcification of the line of demarcation and the interim of old stationary necrotic areas located in the medullary and cancellous regions".

Aseptic necrosis of bone in patients with sickling phenomenon and sickle cell anemia (S-S) apparently occurs with varied frequency and cannot be used, as suggested, as differential of genetic variants of sickle cell phenomena and sickle cell anemia (S-S). Only electrophoresis permits the separation of sickle cell anemia from its genetic variants.

Roentgenographically, aseptic necrosis in sickle cell anemia should be differentiated from Caisson disease, Legg-Perthes disease, advanced hypertrophic arthritis, post-traumatic necrosis, slipped femoral epiphysis, and Gaucher's disease.

Ascepic necrosis of the head of the femur and sickle cell anemia (S-S) according to Tanaka et al[14] occurs in approximately 12% of the patients and might be an incapacitating complication though it can occur in asymptomatic patients.

Since bony changes in the form of aseptic necrosis, involving as a rule the femoral heads and to a lesser degree the humeral heads, occur with varied frequency in both sickle cell anemia and its genetic variants, the radiologist is well justified to include the above diseases in his differential diagnosis in patients of certain race and age suffering with blood dyscrasia.

Aseptic necrosis of the femur or humerus is not the only bony change occurring in this group of patients.[1,2,3,4.5,6,8,14]

This case apparently is the fourth to be reported of aseptic necrosis of the head of the femur and humerus in a patient with sickle cell-thalassemia disease.

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# THE INCIDENCE AND SIGNIFICANCE OF ANTIBIOTIC-RESISTANT ORGANISMS IN HOSPITALS AND THE COMMUNITY

by

R. J. Bishoff, M.D.

Dover, Delaware

Although increase in the incidence of antibiotic-resistant micro-organisms has been magnified by reports from hospital communities where infections due to resistant organisms have become a major challenge, out-patient and private patient treatment have not been affected greatly. However, unless precautionary measures are taken at the hospital level, the incidence of drug-resistant organisms may rise also in the community.[1,2]

What is drug-resistance and how does it come about? Drug-resistance is the expression of a fundamental biological phenomenon and is best defined as *adaptation*.[2] By adapting themselves, organisms are able not only to live in the presence of an antibiotic previously deadly to them, but also to produce progeny that are unaffected by the drug. Several mechanisms have been suggested to account for the appearance of these drug-resistant strains of bacteria. According to Lepper,[3] two mechanisms seem to be more important than the others: first, the ability of the organism to bypass the effect of the drug; and second, the ability of the organism to produce enzymes that inactivate the antibiotic.

The first mechanism takes into consideration naturally resistant bacteria and bacteria that become resistant through hereditary and non-hereditary changes in their metabolism while being exposed to an antibiotic. Observations concerning the second mechanism show that resistance attributable to the production of drug-inactivating enzymes is dependent on the speed with which the enzyme is produced, the potency of the enzyme, the size of the bacterial population producing the enzyme, and the concentration of the antibiotic being used to combat the infection.[4,5,6] The last two observations are important clinically in view of the tendency of some bacteria to become concentrated in tissues such as the lungs or endocardium. As the bacterial population becomes larger, the concentration of enzyme increases and larger doses of antibiotic must be used to overcome the inactivating effect of the enzyme. Other investigators[2,7] conclude that no one mechanism is responsible for for the appearance of drug-resistant bacteria, but that they emerge because of the combined effects of several mechanism operating independently.

Practically all bacteria possess the ability to develop some degree of drug resistance, but most organisms do not develop sufficient initial resistance to overcome bactericidal effect of an antibiotic and, therefore, rarely become resistant. However, some organisms develop resistance rapidly and are

TABLE I
PROPENSITY OF MICRO-ORGANISMS TO DEVELOP RESISTANT STRAINS

| Group | Micro-Organisms | Frequency of Appearance of Resistant Strains |
|---|---|---|
| 1 | Pneumococcus, Meningococcus, Beta hemolytic streptococci (excluding group D streptococci) Gonococcus, Shigella, Hemophilus influenzae | Seldom, if ever |
| 2 | Alpha and gamma streptococci Coliforms, Proteus, Pseudomonas, Micrococcus (Staphylococcus), Mycobacterium tuberculosis | Often |
| 3 | Brucella, Salmonella typhi, Rickettsia | Seldom, if ever |

able to withstand the antibacterial effect of a drug even before a normal course of therapy is complete. Lepper[3] divides organisms into three categories based on their ability to become resistant, (Table 1). Since the micrococci (staphylococci) are most frequently involved in infections that are refractory to antibiotic therapy, the remainder of this discussion will be limited to them.

### ANTIBIOTIC-RESISTANT STAPHYLOCOCCI IN HOSPITALS

The appearance of antibiotic-resistant staphylococci in hospitals is unique because no other species of micro-organisms pose such a world-wide problem. In 1942, Rammelkamp and Maxon,[8] working in this country, were among the first to report on the isolation of penicillin-resistant strains of staphylococci from hospitalized patients. Subsequent investigators showed that these strains of staphylococci were naturally resistant to penicillin because they produced an enzyme, penicillinase, which inactivated the drug.[4,5] Reports from other parts of the world followed. Barber and her associates[9] in England found that the incidence of penicillin-resistant staphylococci increased from 14.1% in 1946 to 59.0% in 1948. Rountree and Thomson[10] at the Royal Prince Alfred Hospital in Sydney, Australia, showed that 59% of the 228 strains of staphylococci isolated from hospitalized patients during 1948 and 1949 were resistant to penicillin. In 1950, a report from Norway[11] gave the incidence of penicillin-resistant staphylococci isolated from patients before treatment with the drug as 15.5%. Following treatment with penicillin, 68.1% of the organisms isolated from the same patients had become resistant. One of the most comprehensive reports on staphylococcal resistance issued in this country is that of Spink[2] (Table 2). It seems evident that drug-resistant strains of bacteria are appearing in hospitals with greater frequency than in the past.

TABLE 2
PERCENTAGE OF RESISTANT STAPHYLOCOCCI ISOLATED FROM HOSPITALIZED PATIENTS

| | 1942 | 1951 | 1952 | 1953 |
|---|---|---|---|---|
| Penicillin | 12.0 | 62.5 | 57.2 | 62.7 |
| Streptomycin | — | 48.0 | 48.8 | 65.3 |
| Chloramphenicol | — | 25.0 | 2.5 | 0.6 |
| Oxytetracycline | — | 38.0 | 47.5 | 62.7 |
| Chlortetracycline | — | 23.0 | 33.2 | 62.7 |
| Erythromycin | — | — | 0.0 | 18.3 |

Resistant strains of staphylococci may originate from a few naturally resistant organisms by selective passage through patients who have been treated with antibiotics. Once the resistant strain is established, its subsequent incidence depends on the frequency with which an antibiotic is used against it. Lepper, Dowling, Jackson and Moulton[12] clearly illustrated this by conducting an experiment in which the use of penicillin was discontinued in favor of erythromycin for five months. At the beginning of the experiment, 50% of the staphylococci isolated from patients and hospital personnel were penicillin-resistant; resistance to erythromycin was negligible. At the end of the test period, the incidence of penicillin-resistant staphylococci had dropped to 35%, while erythromycin resistance rose from 0.0% to 70.0%. During the 4 months following the experiment, the use of erythromycin was discontinued and penicillin was re-instituted. The incidence of resistant organisms to penicillin rose sharply from 35% to 80%, and erythromycin resistance dropped to 28%. As pointed out by Kempe,[1] it would be of considerable interest to know what might occur in the community if a similar experiment were performed.

Hospital dissemination of antibiotic-resistant staphylococci occurs directly from patient to patient to some extent. Intermediate carriers, however, have proved to be the most important vector in the transmission of these organisms. Studies have shown that resistant strains are carried on the skin and in the nasopharynx of physicians, nurses and other hospital personnel, and that the organisms frequently replace the normal nonpathogenic, non-resistant flora of patients being treated at the hospital. Kempe[1] uses the term "cross infection-replacement" to describe this phe-

TABLE 3

METHODS OF MINIMIZING ANTIBIOTIC RESISTANT INFECTIONS

1. Combinations of drug
2. Introduction of new drugs
3. Gradual return of sensitive strains after a drug usage has been decreased
4. Reducing the use of all antibiotics to a minimum
5. Use of minimal effective dose and lim-limited anti-bacterial spectrum
6. Careful bacteriologic studies before treating individuals with chronic infections and/or mixed infections
7. Treatment only for evidence of infection and not for presence of bacteria.
8. Remedy of underlying anatomic, immunologic or metabolic defect when possible
9. Nursing precautions to avoid interchange of organisms between personnel and patients

nomenon and implies that it is certain to have an impact on public health in general.

Since the appearance and dissemination of antibiotic-resistant staphylococci seems to be an easy and universal matter in hospitals, steps must be taken to reduce the incidence of these organisms and to keep them from spreading to private practice. Opinions of several authorities regarding steps that should be taken to prevent the spread of antibiotic-resistant strains of bacteria have been summarized by Lepper[3] and appear in Table 3.

## Antibiotic-Resistant Staphylococci in the Community

There is considerably less information in the literature regarding the incidence of antibiotic-resistant staphylococci in the community than there is for the incidence of such organisms in hospitals. This lack of information results from an effort to spare the patient the inconvenience and cost of bacteriological tests. Also, in private practice, it is usually necessary to initiate immediate therapy when first seeing an acutely ill patient.

Prior to 1949, there is little or no mention in the literature of the incidence of antibiotic-resistant organisms in the community. In 1949, Martin[13] found that 20% of the staphylococci isolated from healthy adults were resistant to penicillin. Summers[11] reported that 43% of the coagulase positive strains of staphylococci isolated during 1952 at an ear, nose, and throat out-patient clinic were penicillin-resistant. Fusillo[15] and Oswald,[16] reporting separately, found the incidence of penicillin-resistant staphylococci for overlapping periods during 1953 and 1954 in and around Washington, D. C. to be 17.8% and 17.5% respectively. The former report also gives the incidence of chlortetracycline and oxytetracycline-resistant organisms to be less than 5%. A study which indicates what can be expected before resistance to a drug is built up was conducted recently in Dover, Delaware.[17] Of all staphylococci isolated from patients, only 2% were resistant to a new sustained release antibacterial agent, sulfaethylthiadiazole.

It is generally believed that environmental conditions outside hospitals are less conductive to the dissemination and perpetuation of antibiotic-resistant strains of all organisms, including the staphylococci. For this reason, the incidence outside hospitals can be expected to be smaller. However, some investigators[1, 2] still feel that there is little evidence to refute the possibility of hospital-resistant strains of bacteria spreading to the community. Dowling,[18] using the phage-typing technique, was able to show that penicillin-resistant strains of staphylococci contracted by hospitalized patients were spread to household contacts of the patients a few days after their return home. While this experiment did not follow the dissemination of resistant strains past household contacts, it would seem that the dissemination could continue *ad infinitum* depending on the number of contacts made by the non-hospitalized person. Just what part this method of dis-

TABLE 4

PENICILLIN-RESISTANT STRAINS OF STAPHYLOCOCCUS FROM FOUR GEOGRAPHIC COMMUNITIES

| Community | No. Strains Tested | Sensitive | Resistant |
|---|---|---|---|
| Washington, D.C. | 34 | 16 | 18 |
| Malaya | 21 | 20 | 1 |
| Borneo | 43 | 43 | 0 |
| Mexico | 14 | 14 | 0 |

seminating resistant strains of organisms plays in the overall incidence in the community is unknown.

In a community, the number of staphylococci resistant to a particular antibiotic seems to depend on the use of the antibiotic in that community. Hopps[19] demonstrated this by determining the incidence of penicillin-resistant staphylococci in four communities in which penicillin had been used in different degrees (Table 4). Since the incidence of resistant organisms in hospitals also depends on the use or disuse of a particular antibiotic, it becomes apparent that previous exposure to antibiotics is important in the overall incidence of antibiotic resistance. In the United States where antibiotics are routinely used in nose drops, sprays, eye drops, ointments, and as food preservatives (usually in ineffective amounts), previous exposure to antibiotics may soon become an important factor in the overall incidence of antibiotic resistance in the community.

Based on the limited reports in the literature, it is difficult to estimate reliably the actual incidence of antibiotic-resistant staphylococci outside hospital communities. However, it seems that the trend toward an increased incidence has become established, and depends on such factors as the use or disuse of a particular antibiotic, pre-exposure to antibiotics, and the spread of organisms from hospital environs through hospital personnel and household contacts of hospitalized patients. If steps are taken in the community to minimize exposure to antibiotics and to control the appearance and dissemination of drug-resistant organisms in the hospital, it is doubtful that the incidence of drug-resistant bacteria in the community will continue to grow.

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# WOMAN'S AUXILIARY TO THE DELAWARE STATE MEDICAL SOCIETY

I am grateful to Mrs. Richard W. Comegys for enlightening us on the Kent County Auxiliary Activities, and to Mrs. J. Leland Fox for the recent Sussex County column. They were of extreme interest to me and served to stress clearly that it is the coordination and blending of all ideas and efforts that produces a well formulated, progressive program.

The term "Program" refers not only to the one planned for a particular meeting, but it also includes all we learn or do within the Auxiliary. The purpose is to inform, to create interest, and to develop points of view. The ultimate goal is to prepare our Membership for roles as informed leaders in health. Because of the broad scope in planning, and realizing the limitations and potentialities of each of our three County Auxiliaries, each must choose those topics which fit the needs and interest of their particular communities. For this reason, Medical Education Week — April 21st-27th — was observed by the Auxiliary being asked to tell the story of Progress in Medical Education to Women's groups within their communities. Several qualified speakers for other Women's organizations were provided and we feel that these groups now have a better understanding and appreciation of the achievements of our medical schools.

We must always remember that good programs don't just happen, but they are the result of good planning.

The thirty-fourth Annual Covention of the Woman's Auxiliary to the American Medical Association will be held in New York City — June 3d to 7th — with headquarters at the Hotel Roosevelt.

The tentative program schedule is as follows:

Saturday, June 1—Nominating and finance committee meetings.

Sunday, June 2—Registration (starting at noon) and meetings of the Board of Directors, and nominating, resolutions and revisions committees.

Monday, June 3—Round table discussions on legislation, public relations, program, organization, Today's Health, A.M.E.F., publications, with newsletters and Bulletin circulation. In the afternoon the annual tea in honor of the national president and president-elect will be held. Members and guests are cordially invited.

Tuesday, June 4—General meeting and luncheon in honor of the national past presidents. Dr. Howard Rusk, Director of the Institute of Physical Medicine and Rehabilitation of the New York University, Bellevue Medical Center, will be the guest speaker.

Wednesday, June 5—General meeting and luncheon in honor of the national president and president-elect. Dr. Dwight H. Murray, president of the American Medical Association, will be the guest speaker. Round table discussions on civil defense, mental health, recruitment and safety will be conducted in the afternoon immediately following luncheon.

The national parliamentarian, and the national chairman of finance, history, reference and revisions will be available for consultation and discussion of Auxiliary questions and problems.

Thursday, June 6—General meeting (until noon). Meeting of the Board of Directors will be held at one o'clock, followed by informal discussion of committee programs for 1957-58 with the committee chairmen.

Friday, June 7—Postconvention workshop of state presidents, presidents-elect and national committee chairmen.

This is your organization and has a relative value to you, therefore, I urge each of you to devote some part of your time to this meeting, especially the round table discussions. Your President will serve as a delegate, plus one delegate and one alternate for each one hundred members. Resolutions have been introduced to National, suggesting that the number of delegates from each state be lowered in an effort to gain a more efficient House of Delegates. The amendment, if passed, would read—"The voting delegates shall be the President of each Auxiliary and in addition one representative from each Auxiliary for each five hundred members or fraction thereof". Each State Auxiliary was asked to review this resolution and submit recommendations to the National Policy Committee.

A logical manner of approach was made —each of the three counties were contacted and the amendment was unanimously approved.

The total potential delegation has seldom been reached, particularly if the convention city is too far distant from many states. For this reason, it is the hope that, with a lower number of wisely chosen, interested delegates, a greater efficiency will develop.

As a delegate to the annual convention, you assume a responsibility to your local, state and national auxiliaries. All members are invited to attend the sessions, but only voting delegates may introduce business or vote on the business of the convention. The Handbook will give the delegate a knowledge of procedures.

I look forward to the pleasure of seeing you at the Roosevelt.

## NOTE

### U.S. ARMY RESERVE HAS OPENINGS FOR DOCTORS, DENTISTS AND NURSES IN WILMINGTON

The 805th Station Hospital, the only U. S. Army Reserve medical unit in Wilmington has several openings for doctors, dentists and nurses. Commissions in the grades of First Lieutenant to Lieutenant Colonel in the case of doctors and dentists and from Second Lieutenant to Captain for nurses are available to both, veterans and non-veterans.

Regular weekly meetings of the 805th Station Hospital are held on Thursday evenings from 8 to 10 P.M. at the USAR Training Center at 11th and Washington Streets. During these meetings physical examinations of Reserve recruits are performed and the personnel is trained in all phases of hospital operation.

Each member of the unit receives a full day's pay based on his rank for each two-hour meeting attended. In addition, retirement benefits are acquired at the age of 60. Affiliation with an Army Reserve unit does not increase the likelihood of an involuntary call to active duty, except in the case of a national emergency to be declared by the President but does decrease any Reserve obligation.

Interested persons should call Lt. Col. K. Sachs, V.A. Hospital, Elsmere, Phone WYman 4-2511, Extension 303 (daytime) or WYman 4-0416 (evenings).

# + Guest Editorial +

## MEDICAL WRITING CAN BE ENJOYABLE

Medical writing can be enjoyable! It may be difficult to start. It may be tedious to revise. But normally, the harder it is to write, the easier it is to read. Like the infant, the thoughts you put in writing can be asy to conceive but hard to deliver. The pleasure is in the finished product. And even the process can be enjoyable!

Medical reading should be enjoyable! Within the mass of medical literature today, that which is difficult to read is doubly a wasted effort. I do not care to lose time interpreting an uninteresting report, nor do I always have the patience to revise and rewrite a pertinent observation which I feel should be published. Yet, you and I have the privilege as well as the obligation to both read and write about professional experiences.

I used to feel that a significant contribution to medical literature should include complete review of existing manuscripts, supplemented by toothy graphs, swirling statistics and numerous photographs. This is false. The most important element for a piece of medical writing is that the author "has something to write."

In many instances all that is needed can be in the form of a letter to an editor, stated in simple terms and ordinary language.

As physicians, we usually speak to our patients, colleagues and students. Yet, when we change our communication medium to the written word we become artificial, use cumbersome phrases and tend to a stereotyped format. This is awkward and unnecessary! In addition, if you were to pad a bit of useful information, it would be as if the twinkling star were hidden behind a cloud. The most important means for the medical communication, then, is "brevity on a specific subject."

On the other hand, a gesture or inflection during conversation or in a lecture may have to be clarified, when writing, by use of precise terms, in order to avoid misinterpretation. Even our case histories, radiology and pathology reports, consultations, letters and narratives of operative procedure must be clear, concise and factual. Then they are easy to read and to understand.

Perhaps we should emphasize this more during all phases of medical school training and post-graduate education.

You and I can find enjoyment in medical writing. All we have to do is to understand what we write, and to state it clearly and concisely. Under such circumstances, our medical reading will also be enjoyable.

JULIAN A. STERLING

Reprinted from Philadelphia Medicine through courtesy of Dr. Sterling and the Editor.

# THE HOME CARE PROGRAM PROGRESS REPORT

What has become known as the Home Care Program of the Delaware State Hospital, was started on February 15, 1956. Our experiences during this first year are of considerable interest to the medical profession in general. I would like to review briefly the purpose, the implications, and the results.

Since the introduction of Thorazine, in the beginning of 1954, drug treatments in psychiatry have brought about considerable changes in the management of psychiatric patients. The capacity of Thorazine and other drugs to modify psychopathological symptoms to the point of cure in some instances, and to a point of compensation in the majority of cases brought up the question of whether it would be possible to cut short hospital treatment. It seemed plausible that a certain group of patients could be restored to normal social activities if put on maintenance medication. Since diabetic and epileptic patients nowadays do well if placed on a maintenance level of medication, one is tempted to work out a similar mode of management for those patients whose symptoms can be suppressed by drugs, such as Thorazine and related phenothiazine compounds. The clinical, social and economic advantages of such an approach are obvious. With the support of a research grant the Home Care Program was organized in order to explore the potentialities of prolonged drug therapy. The following policies were implemented:

1. Patients selected for this program must have shown a favorable response to Thorazine or Compazine therapy in the hospital; they have not completely recovered, but are considered capable of making a good social and occupational adjustment provided medication will be continued.

2. The greater majority of these patients, admitted on commitment status, remain on trial visit while undergoing treatment; other patients, admitted on a voluntary basis, are discharged. These patients are equally eligible to receive the benefits of the program if they so desire.

3. The Program Supervisor, a graduate nurse from the staff of the Delaware State Hospital, dispenses medication, visits the patients at regular intervals in their homes, and reports to the medical staff about her observations.

4. Close contact is to be established with the family physician in order to explain the purpose of the treatment program. It should be stressed that the program pertains exclusively to psychiatric therapy and does not cover medical treatment in general. All patients are advised to consult their own physicians with regard to physical check-ups and treatment of non-psychiatric disorders.

Throughout this year patients were followed closely and seen at regular intervals at clinics held at the Delaware State Hospital. A total of 113 patients were treated; 99 received Thorazine, and 14 Compazine medication. While it is too early to report the results with Compazine, which was only recently added to this investigation, the Thorazine data can be presented briefly. Favorable responses were observed in 67 patients; 14 patients did not benefit and 18 had to be discontinued because of lack of cooperation with regard to medication schedules. The maximum daily dosages varied between 50 and 600 mg. per day. However, the average was 150 to 200 mg. per day. It should be stated that patients were not considered to respond favorably unless they resumed their pre-illness social and occupational activities.

Since this is merely a progress report and not a clinical evaluation, I shall not go into details of our findings. We hope that our clinical experiences with this therapeutic approach will be valuable in changing the present need for prolonged hospitalization.

I would like to expres our gratitude to all physicians, whose cooperation contributed immensely to the success of this program.

F. A. Freyhan, M. D.

# THE AMERICAN PHYSICIAN AND THE WORLD MEDICAL ASSOCIATION

The World Medical Association has become a strong factor in protecting and promoting the professional interests of the medical profession and the cause of world peace.

Now in its 10th year, The World Medical Association is a federation of the most representative national medical association in each of 53 nations. These member organizations represent more than 700,000 physicians. The American Medical Association is a leading member of The World Medical Association.

Doctors of medicine the world over cherish the same basic ideals of conduct and the same devotion to the welfare of mankind. The World Medical Association is cultivating the common purposes of the profession. This growing community of interest is a source of strength to the physicians of every land.

Already, by solid accomplishments, The World Medical Association has earned the right to call itself "the international voice of organized medicine". Thanks largely to the United States Committee and similarly supporting committees of physicians in other leading nations, The World Medical Association has a well-tried constitutional structure, a small but efficient secretariat, and a tri-lingual journal whose world-wide influence and value to the profession is rapidly growing. The permanent office of the secretariat — which serves both the association and the United States Committee — is located in the United States.

The membership of the United States Committee has been growing slowly but steadily. In 1955, the Committee reached its first important milestone of growth: a membership of 5,000 American physicians.

Even with this modest membership representing scarcely 3% of American medicine, important achievements have been registered, many of which would have been impossible if the American pharmaceutical and related industries had not consistently matched the financial support given the United States Committee by its physician members.

In 1956, 128 members of the United States Committee attended the tenth General Assembly of The World Medical Association in Havana. This privilege is available to members of national supporting committees. There is unique inspiration, personal enjoyment and intellectual stimulus in meeting our colleagues from many lands, and in helping to formulate programs that may have incalculable benefits for the profession, and for the welfare of the world.

The World Medical Association assists traveling physicians by providing them with introductions to colleagues in other countries, by making speaking engagements for them abroad, by acquainting them with visiting doctors from other countries, and, of course, by sending the "World Medical Journal" to members of all national supporting committees.

In 1953, The World Medical Association sponsored the First World Conference on Medical Education, held in London. Representatives from many nations have reported concrete benefits from this epochal meeting in terms of better standards and practices in medical education in their countries. A Second World Conference on Medical Education is now being planned for 1959, to be held in the United States.

Two other World Medical Association accomplishments that have brought great credit to our profession and strengthened its solidarity throughout the world were the promulgation in 1948 of the Declaration of Geneva, comprising a modern re-statement of the Hippocratic Oath, and the adoption in 1949 of an International Code of Medical Ethics.

The activities of The World Medical Association in the field of social security are of particular interest to American physicians. They have revealed boldly and unmistakably the physician's inherent and universal need for freedom from third-party interference with the practice of medicine. Such activities should not only fortify but inspire the efforts of American medicine to solve our socio-economic problems without resort to governmental subsidy or control.

On the International stage, The World Medical Association has endeavored to counter efforts of the International Social Security Association and the International Labour Organization to promote state medicine under social security programs. The World Medical Association has earned the respect of the International Labour Organization for its defense of the interests of medicine against the International Labour Organization Convention for Medical Socialization in 1952. Now The World Medical Association is attempting to wrest from the International Labour Organization the recognized world leadership in the field of occupational medicine.

The World Medical Association has engaged in efforts to protect medical research; to safeguard the National Pharmacopoeias and the rights of individuals discovering new drugs and agents to name them.

The World Medical Association has served the profession by representing it in relation to the World Health Organization — the official health agency of the United Nations. In the attempt by various non-medical agencies to draft an International Code of Medical Law, The World Medical Association has insisted that such a code be based upon ethical principles acceptable to the profession.

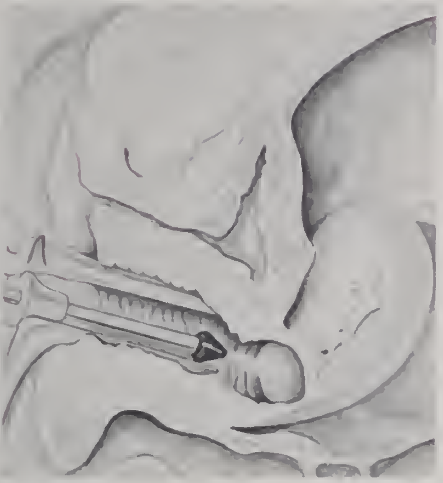
For all these activities, and for many more which demand our attention, additional funds are needed. Each new member not only contributes his nominal membership dues, but, more vitally, he lends his name and influence to the program of The World Medical Association and of its United States Committee.

America's world leadership challenges America's physicians to make the United States Committee a truly impressive and representative body of American physicians.

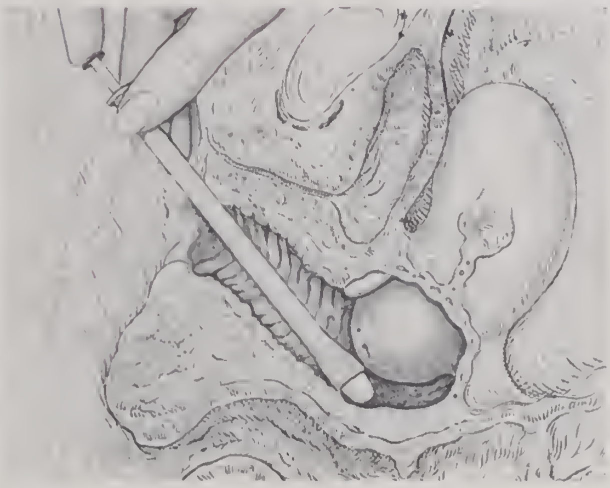
Every individual physician in the U. S. A. is eligible for membership in the United States Committee. Annual membership dues are $10.00. The dues for Patron Members are $100.00 or more. Many of our members regularly make contributions to the U. S. Committee, in addition to their annual dues. All such contributions to the United States Committee of The World Medical Association are tax deductible.

As the international voice of organized medicine, The World Medical Association is speaking for you. It is seeking to promote and protect your interests. You are urgently invited to help these efforts along, by joining the United States Committee, and participating in its work.

**COMPREHENSIVE VAGINITIS REGIMEN**



*Powder Insufflation*



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*Williamson, P.: Trichomonad Infestation, M. Times *84*:929 (Sept.) 1956.

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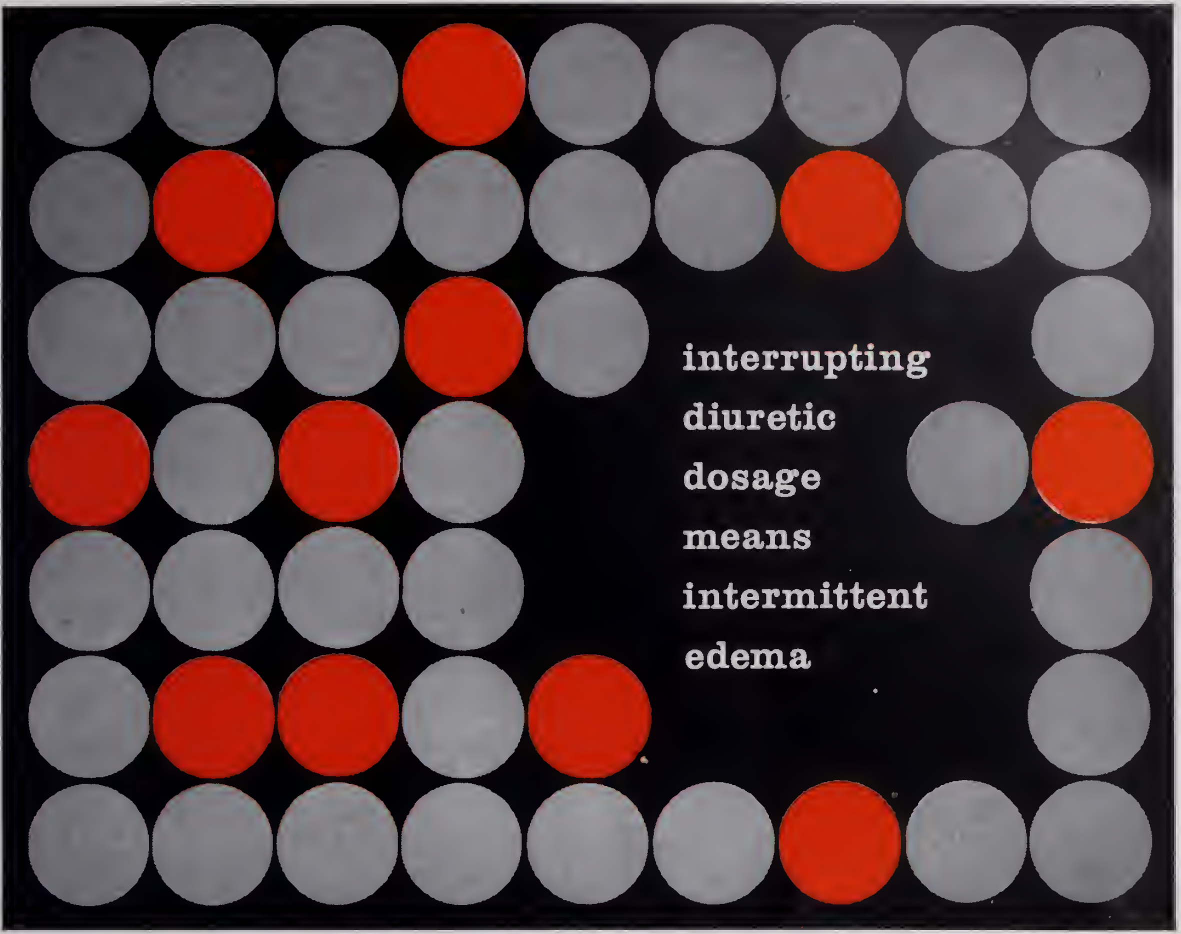

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| Water | 15 oz. |
| KARO | 1 oz. |
| Dried milk (half-skimmed) | 4 tbsp. |
| Water | 18 oz. |
| KARO | 1 oz. |

Feedings: 1½ oz. x 12 x 2 hours
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*Pennington, V.M.: J.A.M.A. In press, 1957.*

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*Altschul, A. and Billow, B.:*
*New York State J. Med. In press, 1957.*

*3* "No patient developed a tolerance to the drug, although medication was prolonged in some cases as long as six months."
*Gillette, H. E.: Internat. Rec. Med.* **169:** *453, 1956.*

*4* "Complications associated with long-term therapy are probably seen in lowest incidence with meprobamate ['Miltown']."
*Fazekas, J. F., Shea, J. G. and Sullivan, P. D.. GP* **14:** *75, 1956.*

*5* "Thus far, there has been very little evidence of actual habituation to meprobamate ['Miltown']. No real tolerance has been observed."
*Borrus, J. C.: Med. Clinics of North America.*
*In press, 1957.*

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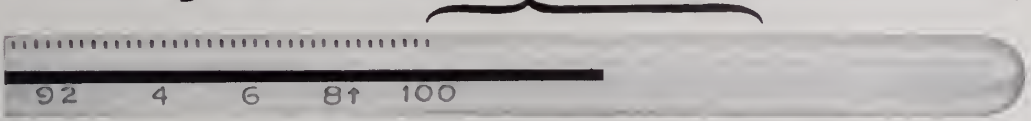

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(1) King, J. W., and Hainline, A., Jr.: Commercial Glucose Oxidase Preparations for the Detection of Glucose in Urine, Cleveland Clin. Quart. 23:212, 1956. (2) Leonards, J. R.: Evaluation of Enzyme Tests for Urinary Glucose, J.A.M.A. 163:260 (Jan. 26) 1957.

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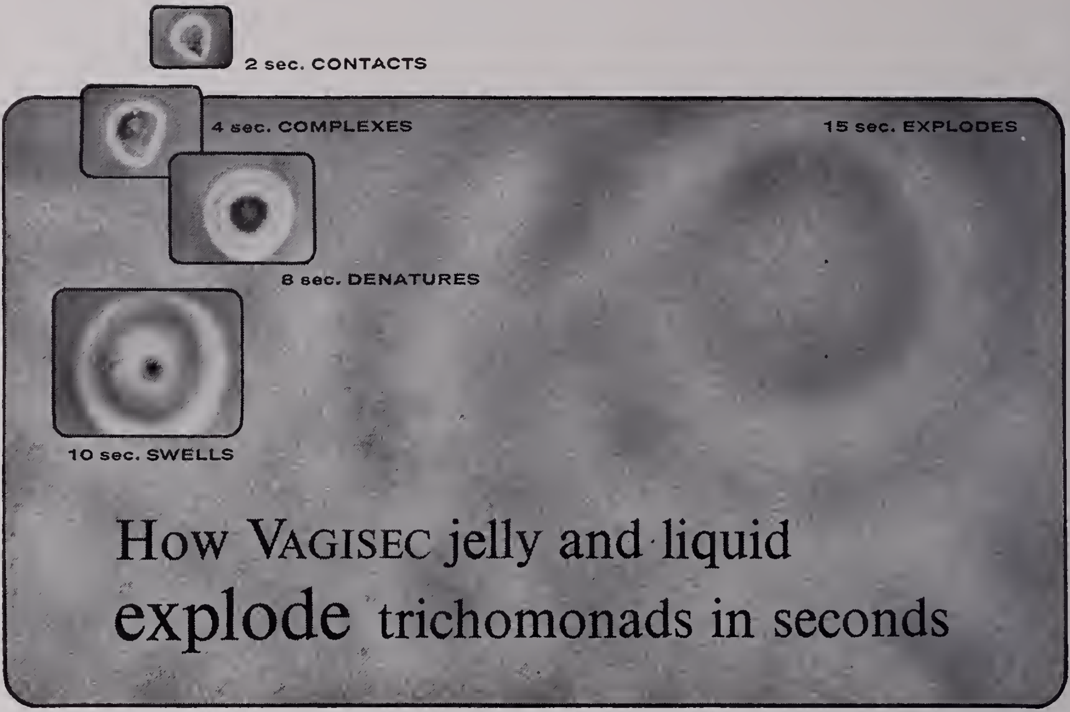

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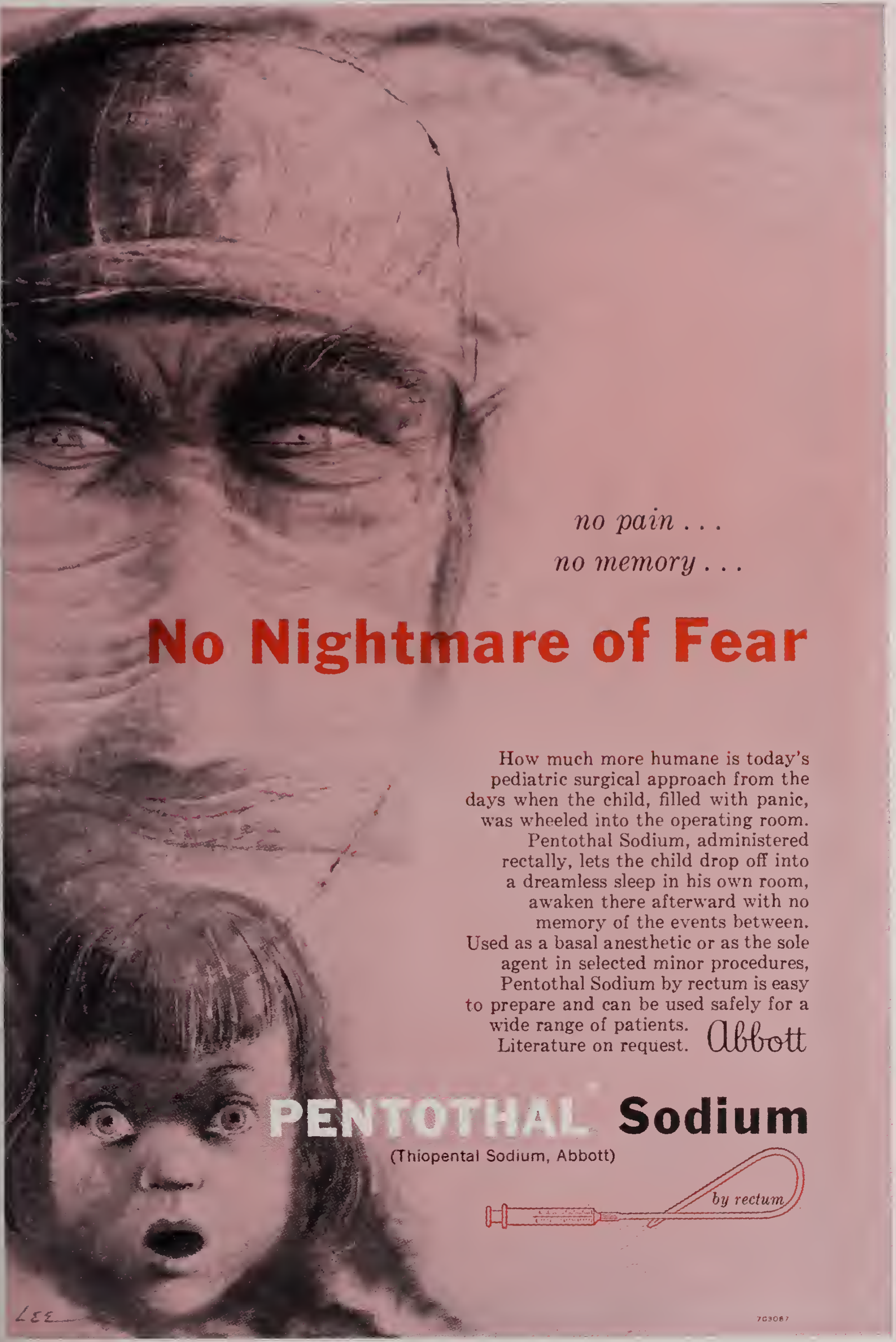

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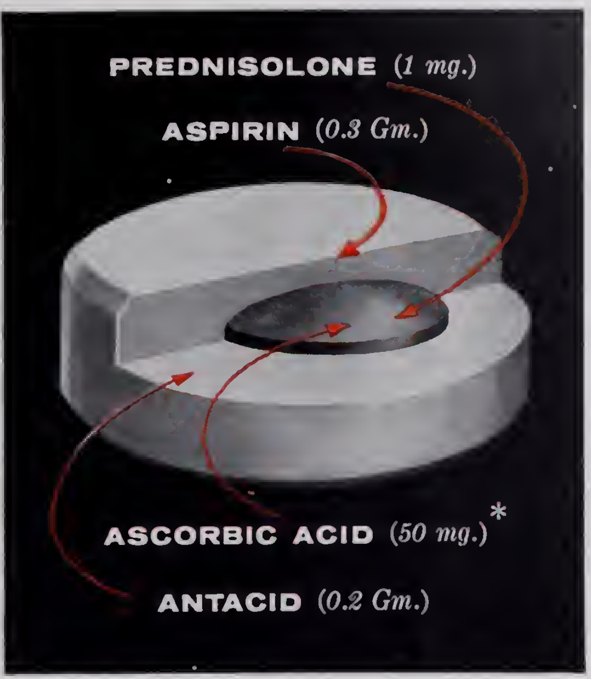
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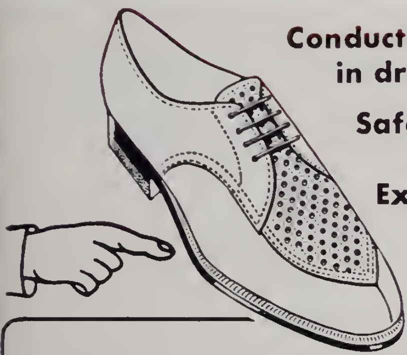

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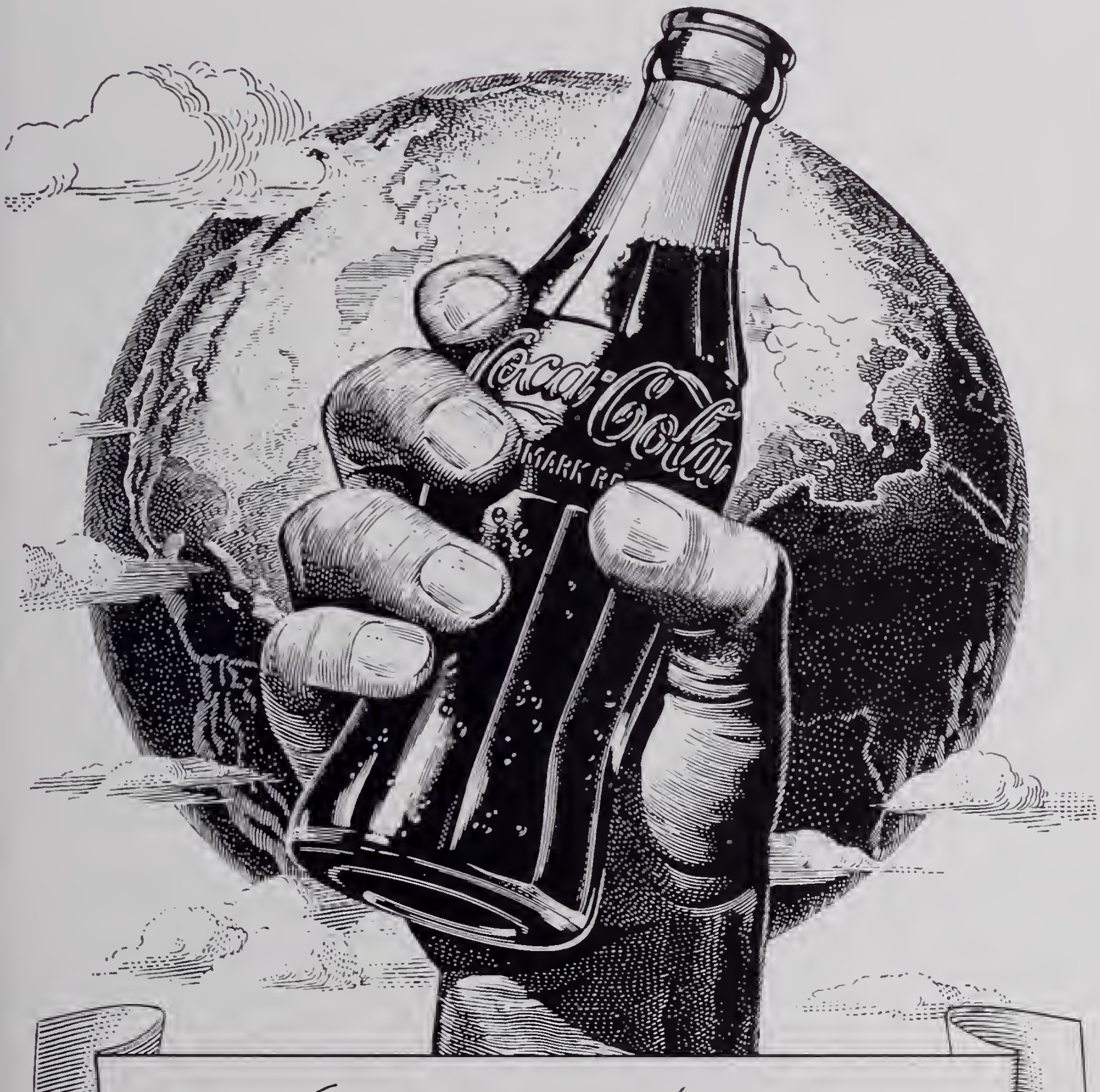

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Complete Contents on Page iv

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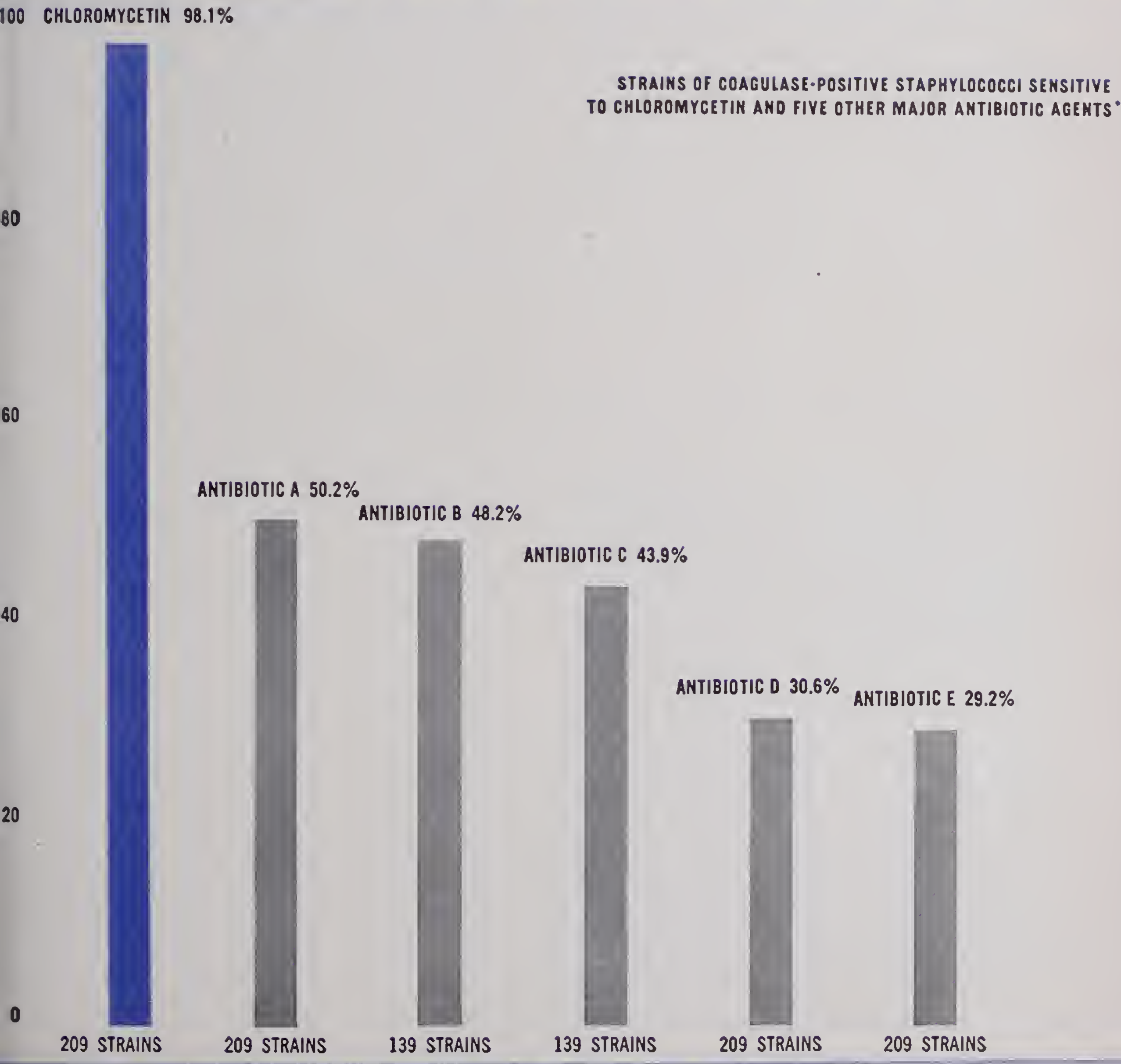

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**Recent Observations**

# On Self-Regulated Schedules For Infants

Genetically acquired behavioral predispositions enable the normal baby to regulate its feeding intake and periodic hunger sensations, its feeding habits. These physiological regulatory forces may be satisfied by adapting the formula content and feeding period to the individual needs of the infant. It involves a sensible compromise between too rigid a schedule, geared to the clock and too lax a schedule, based on self-demand feedings. Such is the current objective: for either extreme can lead to infant feeding difficulties.

The newborn may become a feeding problem if the prescribed formula is excessive or the feeding schedule rigid. Every time he is awakened abruptly from satisfying slumber to be fed forcefully, the baby gradually loses his enthusiasm for the food and begins to resist the feeding. The young infant may balk at the crude introduction of a new food or feeding procedure without the proper prelude of gradual adaptation of taste, color, consistency and quantity.

The older infant weaned from bottle to cup may reject milk or go on a hunger strike. Devoted to his bottle he resents its sudden deprivation. It takes a certain readiness for weaning to make that change agreeable. Later the infant becomes somewhat independent of his mother and arbitrary with his food. What he enjoyed yesterday, he rejects today. If he distorts the diet for a day and his mother resorts to force, a feeding problem is in the making. Sensible decorum will solve these little difficulties before they become big behavior disturbances in childhood.

The problems of infant feeding are always the same but solutions may differ with each era. The carbohydrate requirement for all infants is as completely fulfilled by KARO® Syrup today as a generation ago. Whatever the type of milk adapted to the individual infant, KARO may be added confidently because it is a balanced mixture of low sugars, easily mixed, well tolerated, palatable, hypoallergenic, resistant to fermentation, easily digestible, readily absorbed, non-laxative. Readily available in all food stores.

MEDICAL DIVISION
CORN PRODUCTS REFINING CO.
17 Battery Place, New York 4, N. Y.

Produced by
Corn Products Refining Co.

**Behind Every Karo Bottle . . . A Generation of World Literature**

NEW...

RELIEVES ANXIETY AND TENSION
RELIEVES DISCOMFORT AND DISABILITY
RELIEVES JOINT INFLAMMATION
'M
RELIEVES MUSCLE SPAS

Each Multiple Compressed Tablet of Meprolone provides the inseparable antiarthritic, antirheumatic benefits of:

1. *Prednisolone buffered*—the newest and most potent of the "predni-steroids" for prompt relief of joint pain and arrest of the destructive inflammatory process.

2. *Meprobamate*—the newest and safest of the muscle-relaxant tranquilizers for profound relaxation of skeletal muscle in spasm.

Tolerance to this combination is good because there is little likelihood of sodium retention, potassium depletion or gastric distress with buffered prednisolone, and meprobamate rarely produces significant side effects in therapeutic dosage.

An additional important therapeutic benefit, often overlooked, stems from the tranquilizing action of meprobamate. This component of Meprolone relieves mental tension and anxiety so often manifest in arthritics, making them more amenable to other rehabilitation measures.

***INDICATIONS:*** A wide variety of conditions, in which four symptoms predominate: *a*) inflammation *b*) muscle spasm *c*) anxiety and tension *d*) discomfort and disability; i.e., rheumatoid arthritis, rheumatoid spondylitis (Marie-Strümpell disease), Still's disease, psoriatic arthritis, osteoarthritis, bursitis, synovitis, tenosynovitis, my sitis, fibromyositis, neuritis, acute and chror pain, acute and chronic primary and second: and torticollis, intractable asthma, respirato allergic and inflammatory eye and skin disord tenance therapy in disseminated lupus cry periarteritis nodosa, dermatomyositis and s

**Therapeutic benefits of MEPROLONE compared with tradition**

| | relieves pain | suppresses inflammation | relaxes muscle | eases anxiet |
|---|---|---|---|---|
| **Salicylates** | ✓ | ✓ | | |
| **Muscle relaxants** | | | ✓1 | |
| **Tranquilizers** | | | | ✓1 |
| **Steroids** | ✓ | ✓ | | |
| **MEPROLONE** | ✓ | ✓ | ✓ | ✓ |

*1. Meprobamate is the only tranq muscle-relax*

***SUPPLIED:*** Multiple Compressed Tablets 100 in two formulas as follows: Meproloni of prednisolone, 200 mg. of meprobamate an dried aluminum hydroxide gel. Meprolone- 2.0 mg. of prednisolone in the same formula

NO OTHER
ANTIRHEUMATIC
PRODUCT
PROVIDES AS MANY
BENEFITS AS

**PROLONE'**

MEPRO|BAMATE
PREDNISO|LONE, *buffered*

THE ONLY
ANTIRHEUMATIC,
ANTIARTHRITIC
THAT SIMULTANEOUSLY
RELIEVES:

1. MUSCLE SPASM
2. JOINT INFLAMMATION
3. ANXIETY AND TENSION
4. DISCOMFORT AND DISABILITY

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MERCK SHARP & DOHME
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The Best Tasting
Aspirin you can prescribe.

The Flavor Remains Stable
down to the last tablet.

25¢ Bottle of 48 tablets (1¼ grs. each).

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designed to **control anxiety**

in Arthritis, Asthma, Allergic Dermatoses

with **lower corticoid dosage**

**the original tranquilizer-corticoid**

# Ataraxoid*

*prednisolone and hydroxyzine*

provides the emotional tranquilizer, ATARAX® (hydroxyzine) and the preferred corticoid, STERANE® (prednisolone) • control of emotional factors by tranquilization enhances response to the corticoid for greater clinical improvement • often permits substantial reductions in corticoid dosage, accompanied by reduction of hormonal side effects • confirmed by marked success in 95% of 1095 cases of varied corticoid indications[1]

ATARAXOID *now written as* **Ataraxoid *5.0***

5 mg. prednisolone, 10 mg. hydroxyzine hydrochloride, in green, scored tablets. Bottles of 30 and 100.

*and now available as* **NEW** **Ataraxoid 2.5**

2.5 mg. prednisolone, 10 mg. hydroxyzine hydrochloride, in blue, scored tablets. Bottles of 30 and 100.

*and* **NEW** **Ataraxoid *1.0***

1.0 mg. prednisolone, 10 mg. hydroxyzine hydrochloride, in orchid, scored tablets. Bottles of 100.

*formerly* **Ataraxoid**
**NOW** written **Ataraxoid 5.0**

*advantages:* (1) greater flexibility of dosage (2) effective tranquilization permits lower corticoid dosage

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When the contents of Pandora's Box were released, Hope alone remained. To the allergic patient, faced with a veritable Pandora's Box of discomforts, 'Perazil' offers far more than hope. It gives ability to withstand allergens, without reactions.

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*long-lasting action • exceptionally little side effect*

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When smooth muscle spasm gets rough on your patients

**Like oil on troubled waters...**

# DONNATAL®

**provides superior spasmolysis** Robins
through provision of natural belladonna alkaloids in optimal ratio, with phenobarbital

*Formula*

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DONNATAL CAPSULES
DONNATAL ELIXIR (per 5 cc.)

| | |
|---|---|
| Hyoscyamine Sulfate | 0.1037 mg. |
| Atropine Sulfate | 0.0194 mg. |
| Hyoscine Hydrobromide | 0.0065 mg. |
| Phenobarbital (¼ gr.) | 16.2 mg. |

DONNATAL EXTENTABS®
(Extended Action Tablets)

Each Extentab (equivalent to 3 Tablets) provides sustained 1-tablet effects...evenly, for 10 to 12 hours — all day or all night on a single dose.

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**3.** Diets promote accurate adjustment of calorie levels to the special needs of the patient, yet allow each individual considerable latitude in the choice of foods.

**4.** Each booklet presents in addition 16 pages of appetizing, kitchen-tested recipes.

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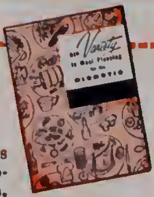
[1] The Food Exchange Lists referred to are based on material in "Meal Planning with Exchange Lists" prepared by Committees of the American Diabetes Association, Inc., and The American Dietetic Association in cooperation with the Chronic Disease Program, Public Health Service, Department of Health, Education and Welfare.

Chas. B. Knox Gelatine Co., Inc.
Professional Service Dept. SJ-25
Johnstown, N. Y.

Please send me ....... dozen copies of the Knox diabetic brochure describing the use of Food Exchange Lists.

Your Name and Address



# relaxes both mind and muscle

***for anxiety and tension in everyday practice***

- well suited for prolonged therapy
- well tolerated, relatively nontoxic
- no blood dyscrasias, liver toxicity, Parkinson-like syndrome or nasal stuffiness
- chemically unrelated to phenothiazine compounds and rauwolfia derivatives
- orally effective within 30 minutes for a period of 6 hours

*For treatment of* **anxiety and tension states and muscle spasm**

THE ORIGINAL MEPROBAMATE

# Miltown®

*2-methyl-2-n-propyl-1,3-propanediol dicarbamate—U. S. Patent 2,724,720*

NOW IN 2 CONVENIENT DOSAGES

NEW 200 mg. SUGAR-COATED TABLETS

STANDARD 400 mg. SCORED TABLETS

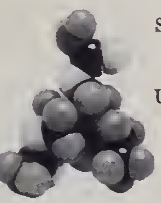
*Tranquilizer with muscle-relaxant action*

DISCOVERED AND INTRODUCED

BY WALLACE LABORATORIES, *New Brunswick, N. J.*

SUPPLIED: *(Bottles 50 tablets)*
*400 mg. scored tablets*
*200 mg. sugar-coated tablets*
USUAL DOSAGE: *One or two 400 mg. tablets t.i.d.*

*Literature and Samples Available on Request*



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MEPROBAMATE MOLECULE

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reports of clinical studies

1 "I have used meprobamate in my general psychiatric practice since April, 1955, and believe it to be [a] drug of choice for relief of tension, anxiety and insomnia."

*Lemere, F.: Northwest Med.* **54**: *1098, 1955.*

2 ". . . the patient [taking Miltown] never describes himself as feeling detached or 'insulated' by the drug. He remains . . . in control of his faculties, both mental and physical, and his responsiveness to other persons is characteristically improved."

*Sokoloff, O. J.: A.M.A. Arch. Dermat.* **74**: *393, 1956.*

3 "Of special importance is the fact that Miltown does not appear to affect autonomic balance—which in alcoholics is often unstable . . ."

*Thimann, J. and Gauthier, J.W.: Quart. J. Stud. Alcohol.* **17**: *19, 1956.*

4 "The [relative] absence of toxicity, both subjectively and objectively, is an important feature in favor of Miltown. In addition, there were no withdrawal phenomena noted on cessation of therapy, whether it was withdrawn rapidly or slowly."

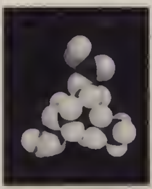
*Borrus, J.C.: J.A.M.A.* **157**: *1596, 1955.*

5 "Miltown is of most value in the so-called anxiety neurosis syndrome, especially when the primary symptom is tension . . . Miltown is an effective dormifacient and appears to have . . . advantages over the conventional sedatives except in psychotic patients. It relaxes the patient for natural sleep rather than forcing sleep."

*Selling, L.S.: J.A.M.A.* **157**: *1594, 1955.*

THE ORIGINAL MEPROBAMATE

**Miltown**®



THE MILTOWN® MEPROBAMATE MOLECULE

*2-methyl-2-n-propyl-1,3-propanediol dicarbamate—U.S. Patent 2,724,720*

*Tranquilizer with muscle-relaxant action*

DISCOVERED AND INTRODUCED

BY WALLACE LABORATORIES, *New Brunswick, N. J.*

**new**

**the logical combination for antibacterial therapy and antifungal prophylaxis**

**what is it?**

the phosphate complex of tetracycline

FOR INITIAL ANTIBIOTIC BLOOD LEVELS
FASTER AND HIGHER THAN EVER BEFORE

+

antifungal activity of Mycostatin

FOR ADDED PROTECTION AGAINST
MONILIAL SUPERINFECTION

**MYSTECLIN V**

Squibb Tetracycline Phosphate Complex (Sumycin) + Nystatin (Mycostatin)

**why should you prescribe it?**

Because it provides highly effective broad spectrum antibiotic therapy for many common infections

AND AT THE SAME TIME

protects your patients against the monilial overgrowth so commonly observed during therapy with the usual broad spectrum antibiotics

**MYSTECLIN V**

Squibb Tetracycline Phosphate Complex (Sumycin) + Nystatin (Mycostatin)

Each capsule contains tetracycline phosphate complex equivalent to 250 mg. tetracycline hydrochloride and 250,000 units Mycostatin.

Minimum adult dosage: 1 capsule q.i.d. Bottles of 16 and 100.

SQUIBB Squibb Quality—the Priceless Ingredient

'MYSTECLIN'®, 'SUMYCIN' AND 'MYCOSTATIN'® ARE SQUIBB TRADEMARKS

# Announcing a unique new rauwolfia derivative . . .

First report on one of the
most encouraging advances
in psychopharmacology
since the introduction
of rauwolfia:
a tranquilizing–
antihypertensive agent
which combines the potency
of the rauwolfias with
significantly fewer and
milder side effects.

In mid-1955, Abbott Laboratories released for clinical tri new alkaloid of *Rauwolfia canescens*. This new alkaloid, l named Harmonyl, received special attention because of high potency and low toxicity it exhibited in extensive pl macological testing.

Since that time, Harmonyl has been tried in conditions ran from mild anxiety to major mental illnesses and in hyper sion. Every characteristic of the drug was studied . . . evalu . . . compared. And from the reports, one fact stands out:

- In more than two years of clinical evaluation, Harmonyl exhibited significantly fewer and milder side effects in c parative studies with reserpine. This, while demonstra effectiveness comparable to the most potent forms of rauwo
- Most significant: Harmonyl causes less mental and phys depression. *And there are very few reports of the lethargy seen many other rauwolfia preparations.*

This is not to suggest, of course, that side effects will not o with Harmonyl—as with any potent therapeutic agent. the mildness of side effects, in the few instances in which t have been reported, suggests Harmonyl as a drug of choic conditions ranging from mild anxiety to major mental ill and in essential hypertension.

## Why fewer and less severe side effects?

Some investigators suggest that the evidence of less paras pathetic effect with Harmonyl in animals might also be tr man. In chronic toxicity studies with Harmonyl this was m fested by less diarrhea, "bloody tears" and ptosis in rats t was observed with the same dosage of reserpine. Dogs also hibited milder side effects—in particular, diarrhea. No o toxicity or hematological change was observed with Harm over a wide dosage range.

## Harmonyl as a tranquilizer

While Harmonyl's safety is most impressive, clinical invest tors reported other notable characteristics for this wide-r

# Harmonyl*

(Deserpidine, Abbott)

uilizer. For instance, following an eight-month study of
ic, hospitalized mental patients, Ferguson[1] reported:

rmonyl benefited at least 15% more overactive patients
oral reserpine.

rmonyl was more potent in controlling aggression,
ring only one-half to two-thirds the dosage of reserpine.

number of patients experiencing side reactions on
pine were completely relieved when changed to Harmonyl.

s summary Ferguson concluded: "*The most notable im-
ions were the absence of side effects and relatively rapid
of action with Harmonyl.*"

**monyl in hypertension**

rtension studies show that the average reduction in blood
ure obtained with Harmonyl compares closely to that ob-
d with reserpine. The tranquilizing effect of the two drugs
appeared similar, except that few cases of giddiness,
go, sense of detached existence or disturbed sleep were
ved with patients receiving Harmonyl.

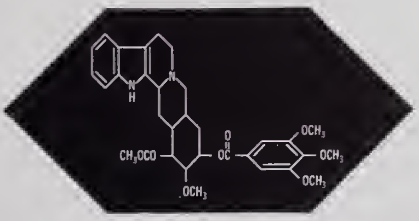
*ges* In mild anxiety, as little as 0.1 mg. of Harmonyl a
nay be effective. In institutionalized psychiatric patients,
ss than 2 to 3 mg. a day is likely to be beneficial.

ld essential hypertension, treatment may be started with
25-mg. tablet three or four times a day. After about ten
(or sooner, depending upon response), dosage may be re-
. A maintenance dose of 0.25 mg. daily is often sufficient.

*utions,* As with other forms of rauwolfia, Harmonyl
be used cautiously in peptic ulcer and epilepsy and in
nts about to undergo surgery or electroshock treatment.
te infrequent reports involving depression, patients with
ory of depressive episodes should be watched carefully.

*ssional literature* is available upon request.

*lied:* Harmonyl is supplied in
g., 0.25-mg. and 1-mg. tablets.



Abbott

*Reference: 1: Ferguson, J. T.: Comparison of Reserpine and Harmonyl in Psychiatric Patients:
A Preliminary Report, Journal Lancet, 76:389, December, 1956.*

**Trademark*

705147

For Real Pain ...give real relief:

**A.P.C. WITH Demerol® tablets**

Each tablet contains:

| | | |
|---|---|---|
| Aspirin | 200 mg. | (3 grains) |
| Phenacetin | 150 mg. | (2½ grains) |
| Caffeine | 30 mg. | (½ grain) |
| Demerol hydrochloride | 30 mg. | (½ grain) |

Average Dose:

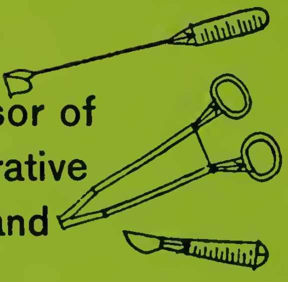
1 or 2 tablets.

*Narcotic blank required.*

**Potentiated Pain Relief**

WINTHROP LABORATORIES
New York 18, N. Y. • Windsor, Ont.

Demerol (brand of meperidine),
trademark reg. U.S. Pat. Off.



*Pfizer*

a proven suppressor of postoperative nausea and vomiting...

**BONAMINE***

BRAND OF MECLIZINE HYDROCHLORIDE

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**Baynard Optical Company**

**Prescription Opticians**

*We Specialize in Making*
*Spectacles and Lenses*
*According to Eye Physicians'*
*Prescriptions*

GUILD of PRESCRIPTION OPTICIANS of AMERICA

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YOUR PATIENT NEEDS AN ORGANOMERCURIAL

Practicing physicians know that many years of clinical and laboratory experience with any medication are the only real test of its efficacy and safety.

Among available, effective diuretics, the organomercurials have behind them over three decades of successful clinical use. Their clinical background and thousands of reports in the literature testify to the value of the organomercurial diuretics.

TABLET
**NEOHYDRIN®**
BRAND OF CHLORMERODRIN (18.3 MG. OF 3-CHLOROMERCURI-2-METHOXY-PROPYLUREA EQUIVALENT TO 10 MG. OF NON-IONIC MERCURY IN EACH TABLET)

a standard for initial control of severe failure

**MERCUHYDRIN® SODIUM**
BRAND OF MERALLURIDE INJECTION

LAKESIDE

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# Meat...

## *Good Nutrition and the Metabolic Changes of Adolescence*

The sharp increase in nutritional requirements during adolescence is ascribed to the rapid growth, restless activity, high basal metabolism, and increased rate of organ development during this period.[1, 2] Nutrient needs during adolescence are higher than at any other period of life[3] except for pregnancy and lactation.

In order to satisfy these extremely high nutritional requirements, "protective" foods supplying liberal amounts of protein, vitamins, and minerals should predominate in adolescent diets.[3] Such foods include meat, poultry, fish, milk, eggs, vegetables and fruits, and whole-grain or enriched cereals and enriched bread. Accessory foods commonly eaten by adolescents to satisfy emotional needs may provide energy, but are commonly responsible for obesity and should not take the place of the "protective" foods.

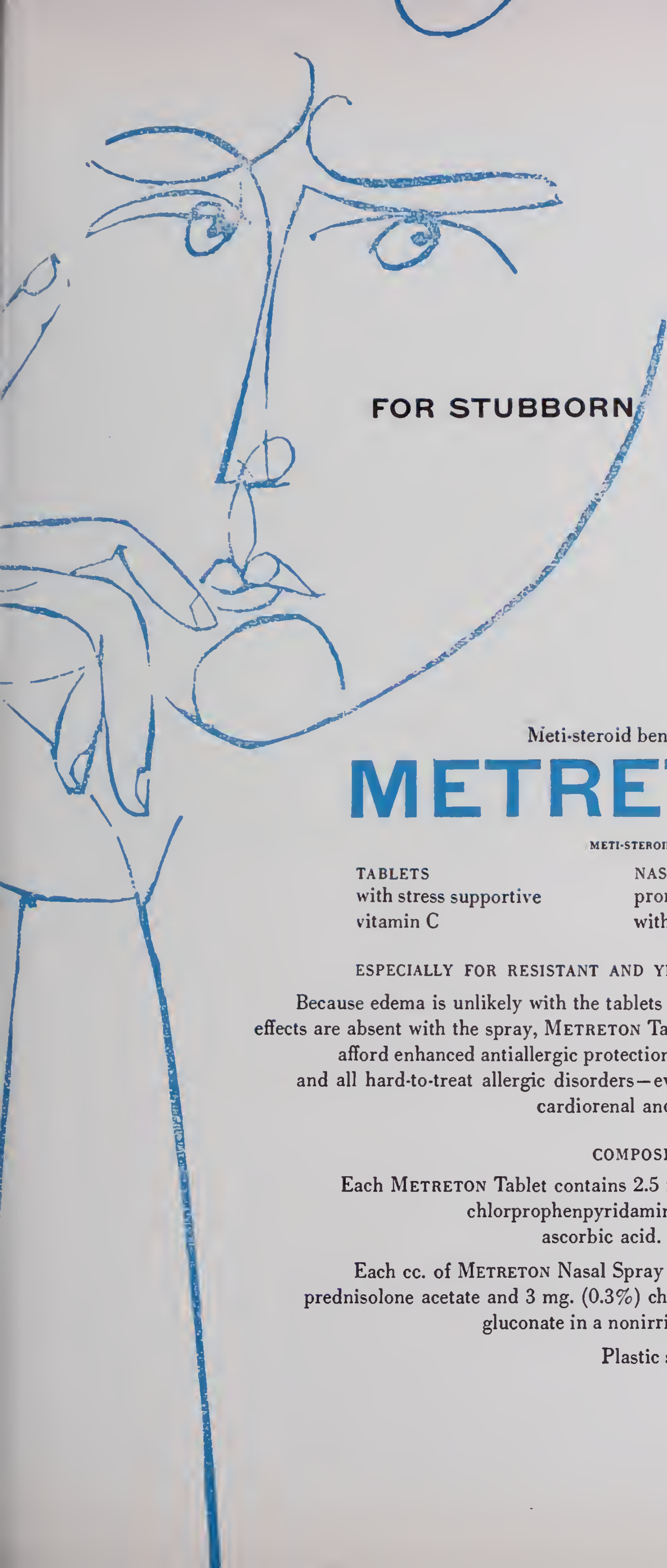
Meat contributes much toward making the daily meals of adolescents appetizing, ample, and satisfying as well as adequate in protein, B vitamins, iron, phosphorus, potassium, and magnesium. Its complete protein functions in all physiologic mechanisms utilizing protein—tissue growth and replacement, fabrication of enzymes, hormones, and antibodies, and maintenance of the body's fluid balance. Its B vitamins and minerals take part in many processes of intermediate metabolism important in body development.

---

1. Toverud, K. U.; Stearns, G., and Macy, I. G.: Maternal Nutrition and Child Health. An Interpretative Review, Washington, D.C., National Research Council, National Academy of Sciences, Bull. No. 123, 1950, p. 115.
2. Proudfit, F. T., and Robinson, C. H.: Nutrition and Diet Therapy, ed. 11, New York, The Macmillan Company, 1955, p. 271.
3. Martin, E. A.: Roberts' Nutrition Work with Children, Chicago, The University of Chicago Press, 1954, pp. 231-236.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

**American Meat Institute**
**Main Office, Chicago...Members Throughout the United States**



## FOR STUBBORN ALLERGIES...

Meti-steroid benefits are potentiated in

# METRETON*

METI-STEROID — ANTIHISTAMINE COMPOUND

| TABLETS | NASAL SPRAY |
|---|---|
| with stress supportive vitamin C | prompt nasal comfort without jitters or rebound |

### ESPECIALLY FOR RESISTANT AND YEAR-ROUND ALLERGIES

Because edema is unlikely with the tablets and sympathomimetic effects are absent with the spray, METRETON Tablets and Nasal Spray afford enhanced antiallergic protection in vasomotor rhinitis and all hard-to-treat allergic disorders—even in the presence of cardiorenal and hepatic insufficiency.

### COMPOSITION AND PACKAGING

Each METRETON Tablet contains 2.5 mg. prednisone, 2 mg. chlorprophenpyridamine maleate and 75 mg. ascorbic acid. Bottles of 30 and 100.

Each cc. of METRETON Nasal Spray contains 2 mg. (0.2%) prednisolone acetate and 3 mg. (0.3%) chlorprophenpyridamine gluconate in a nonirritating isotonic vehicle.

Plastic squeeze bottle of 15 cc.

Schering

*T.M. MT-J-117

Lilly
QUALITY / RESEARCH / INTEGRITY

**for rapid yet sustained sedation**

PULVULES

**TUINAL**

**combine two cardinal features in a single preparation**

There are equal parts of quick-acting 'Seconal Sodium'* and moderately long-acting 'Amytal Sodium'† in each Pulvule Tuinal. Assures your obstetric patient quick, sustained amnesia; your surgical patient relief from apprehension and fear.

*Available in three convenient strengths—3/4, 1 1/2, and 3-grain pulvules.*

*'Seconal Sodium' (Secobarbital Sodium, Lilly)
†'Amytal Sodium' (Amobarbital Sodium, Lilly)

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DELAWARE STATE MEDICAL JOURNAL

*Issued Monthly Under the Supervision of the Publication Committee*
*Owned and Published by the Medical Society of Delaware*

VOLUME 29 May, 1957 NUMBER 5

# PHYSICIANS OF QUALITY*

RUSSELL S. BOLES, M.D.**

For many years I have been interested in the motivation that prompts young people to study medicine. On questioning them throughout the years, it was clear that most of them chose medicine for a laudable reason — it offered them an opportunity to do good by their fellow man— they saw themselves as proud and valuable members of a society that they could serve in an endless number of ways; in short, they felt a sense of dedication and spirituality, though they did not define it as such, that would open up a life in which they would not only be useful but needed — needed to heal the sick, and comfort the sorrowing, and to contribute, in their way, in promoting the welfare of mankind.

It is true we have some delinquents among us, but on the whole, the medical profession is a high and honorable calling, attracting each year more and more young men and women who aspire to become physicians. For those who have been fired by such ambition and have assumed the study of medicine, we all should feel a great sense of responsibility and guardianship. This is an obligation I believe we owe them. It should extend not only through their pre-medical and undergraduate years but throughout their entire period of training as internes, residents and fellows — yes, even until they are finally launched in their respective fields within the profession. By accepting such an obligation we can contribute toward a more just selection of those who wish to study medicine as well as play an effective part in moulding the careers of those who succeed in their ambition.

I have often wondered in whose hand and by what standards should the destiny of these hopeful young people rest? I am sure I have seen young men who would have done credit to our profession, been denied that opportunity by having their hopes snuffed out in their early pre-medical days by arbitrary individuals and false standards. How shocking it might be today if we knew how many fine able young men and women never gain an opportunity to satisfy the longing in their hearts to practice medicine because they did not show a proper aptitude rating, the rating many times not being at fault as much as those that determine it.

Should a student survive his pre-medical days he must beware in his early undergraduate years of, let us say, physiological chemistry, which may be used as the measuring rod that determines his competence to heal the sick and comfort the sorrowing. By the time he graduates, serves his internship and a residency or a fellowship with its demands for research, should it occasion any surprise that he is beginning to wonder what it is all about. But he is not yet through. The ogre of more intensive study and further examinations in order to gain some board certification leaves him heavy-laden, thoroughly bewildered and often suffering a deep sense of frustration and anxiety, wondering which way he should turn next to find the Elysian Field in which he was to serve his dedicated calling and seek his spiritual rewards. It just is not human and how little needed he one day begins to feel! And when we feel we are no longer needed, our lives begin to wither and decay.

---

*Read at the Annual Meeting, Medical Society of Delaware, Rehoboth, September 1956.

**Emeritus Professor of Clinical Medicine, University of Pennsylvania.

I would not venture to predict how medical educators might correct the unfortunate situation they have created. We hear much of different experiments in medical education — of "comprehensive" medicine with increasing emphasis on sociological, psychological and physiological studies — a so-called scientific evaluation of the patient; on the other hand, we hear the cry for more and more science in medicine — a so-called scientific medicine. If you could understand the difference and be able to draw the line between the two, taking a little more of this and a little less of that, you, like the educators, still would not know the answer. Educators might take a tip from some of the industrialists who have come to recognize that "the top graduates from the schools of Classics and Ancient History" with a broad "training and outlook on human affairs, make far better executives than anyone else".

What those of us who have had to make our living in the private practice of medicine do know, and what many patients do know, is, that the modern practice of medicine has been de-humanized. How could it be otherwise when the physician himself has been de-humanized. We have seen the trend growing year by year and now we are naively told by medical educators that medical practice is in need of humanization! Better they should say re-humanization. Somebody must now discover how to bring this about — how to select and to develop physicians who have a personal interest in the patient rather than in a disease; who are sympathetic and kind and tolerant rather than eager beavers for some research work; who are competent and intelligent, rather than unsatisfying intellectual snobs, who are frank and honest, rather than evasive and lacking in confidence.

The institutional practice of medicine, the material as well as the methods, is quite different from the private practice of medicine and consequently one with vision will not fail to appreciate that it is the general practitioner who, with sympathy and understanding, competence and intelligence, "humanizes" with his patients in their home and local environment, who gets behind the scenes as it were, and who does not suffer from institutional myopia. His patients need him and they love him. This kind of physician is not an accident. He has attained his enviable position not only because of his skill and experience, but because of a warm and engaging personality which reflects the interest and concern he feels for his patient. What a decline in the striking personalities in medicine of just a generation ago — of those incomparable physicians and surgeons, especially the latter, who with their histrionics and natural or assumed characteristics caused them to dominate a scene the minute they appeared —men whom no one could deny were highly competent in their field. What a pity if too many dull lusterless individuals with pretensions of scholarship should supersede them.

When a young man's training becomes cruelly and rigidly academic, it is certain to warp his personality, diminish his incentive and cause the talents within him to atrophy. As a result, he ceases to achieve the full and happy life that is due him—he has been denied the opportunity to live abundantly. This does not allow for the development of the true physician, the physician of quality, to whom I have just alluded.

Quality, I would remind you, has been defined as that indefinable something, apart from technique, that is common to all art and teaching. In athletes, it is called form; in literature, style; in social and animal life, breeding. Its presence fills an indispensable human need. In its perfection it may be called genius, which Hendrick Van Loon has called "perfection of technique plus something else." What that "something else" is we never have been quite able to find out. Some call it God, and others call it "divine inspiration". Van Loon goes on to say, "While I really don't know what that 'something else' is, I am very much aware of the fact that I recognize it the moment I hear it or see it". It is that "something else" we should give full opportunity for development, in the making of young physicians today. How? There are many ways.

Among the particular young people who have chosen medicine as a career there lies a wealth of talent. Given an opportunity to flower, this talent would reveal among them great musicians, poets, authors, artists, sculptors, botanists, dramatists and others. To be sure, not all are born with a temperament seeking an artistic outlet—others may be devoid of imagination and unaware of the finer pleasantries of life; for these, we may feel life has passed them by.

I would like to tell you about some members of our profession, past and present, distinguished in callings other than medicine, with whom most of us are unfamiliar and yet toward whom we point with great pride. They serve as representatives of the type of physician that would embellish our profession today.

John Keats, the great English poet, was serving as a surgeon's apprentice when he became inspired to write poetry after reading Spenser's "Faerie Queen". Robert Bridges, though a busy physician, was appointed Poet Laureate in England in 1913. His last and longest poem "The Testament of Beauty" was published on his eighty-fifth birthday. Oliver Goldsmith, who was called by Thackeray the most beloved of English writers, will always be remembered by his "Vicar of Wakefield", "The Traveler", "She Stoops to Conquer", "The Deserted Village" and other novels. Incidentally, Goldsmith was found not qualified for membership in the College of Surgeons in England! It has been said this could have been due to his "irreclaimable habits of dissipation". Nevertheless, a monument to him was erected in Westminister Abbey bearing the following inscription by Johnson — "There was almost no kind of writing that he did not touch — none that he touched that he did not adorn".

Supreme among our own literary greats, was Oliver Wendel Holmes who practiced medicine in Boston and in his first year of practice in 1835, published his first volume of poems. Holmes was professor of anatomy at Harvard for thirty-five years, during which time he presented his epochal paper on "The Contagiousness of Puerperal Fever". "The Autocrat of the Breakfast Table", "A Mortal Antipathy", "The Guardian Angel", "Elsie Venner", "The Chambered Nautilus", and other notable contributions to the literature led to Holmes being called the American Goldsmith. In the literary field, I finally must mention William James, the brilliant psychologist and philosopher, S. Weir Mitchell of "Hugh Wynne" fame and among those closer to us, Sir William Osler. It is interesting to know that Sir William's wife was Grace Revere, a great-granddaughter of Paul Revere, famous for his midnight ride from Charlestown to Lexington in 1775. Some of us can recall the sorrow we felt when Osler's only living son, Edward Revere, was killed in combat in Flanders in 1917. These are but a few of the great medical names of past years that illuminate the literary firmament.

Some physicians in past years attained distinction as soldiers, explorers and statesmen. For instance, Thomas Sydenham, who will always be remembered for his famous treatise on gout, and for being the first to call attention to the relationship between angina pectoris and coronary sclerosis, was an outstanding soldier, leading the military forces which suppressed a royalist attack in a civil war in England, in July, 1644. Among the names of physicians distinguished beyond medicine who are recorded in history, is that of Sir Wilfred T. Grenfell, notable because of his extraordinary mission to Labrador. Incidentally, Grenfell was a master deep sea mariner, sailed his own hospital ship and led an adventuresome missionary life on the coast of Labrador.

Among physician-explorers one name stands out pre-eminently. That, of course, is David Livingston. Livingston, though a Licentiate of the Faculty of Physicians and Surgeons of Glasgow, made three great expeditions to Africa and on his return received many civic and professional honours. Among physician-statesmen, it will surprise many of us to know that Clemenceau, the "Tiger", who inspired the French to victory during the First World War, becoming Minister of War and Premier of France at the age of 76, practiced medicine at Montmartre, France, having graduated from the Faculty of Medicine of the University of Paris. His grandfather, father and son were also physicians and devoted themselves to music, painting and sculpture.

I am sure we are all familiar with the fame of William Withering who published in 1788 "An Account of the Foxglove and Some of Its Medical Uses" — that classic in medical history which unfolded the virtues of digitalis in the modern treatment of cardiac disorders. Few of us probably know that Withering was a brilliant meteorologist as well as botanist.

Etching and painting, it appears, appealed to many of our older clinicians. Sir William Richard Gowers for instance, while noted as a neurologist, ophthalmologist and hematologist, attained eminence as an etcher, many of his etchings being exhibited at the Royal Academy in London.

Further, in illustrating the versatility of members of our profession, may be mentioned that famous sculptor, Robert Tait Mackenzie, known personally to many of us while he was connected with the University of Pennsylvania. Dr. Mackenzie exhibited at the Royal Academy in London as well as in the Paris Salon. Throughout Canada and the United States may be found many memorials and statues executed by this graduate in medicine.

Perhaps more physicians have displayed an interest and talent in music than in any other artistic activity outside their profession. It seems only natural that this should be so as the type of man who finds medicine appealing usually finds music in some form, equally so. It has been said that "music must take rank as the highest of the fine arts — as the one which more than any other, ministers to human welfare". The birth of the strong amity between music and medicine can be traced in Greek mythology to Apollo, God of Music and Medicine, who may be found playing the lyre while his son, Aesculapius, was gaining renown not only for his surgical skill but also for his proficiency in music.

To trace in history the early association of music and medicine, one would have to go back to the time of St. Luke, author of the third Gospel, who, in addition to being celebrated as the painter of the seven portraits of the Virgin, was devoted to music and was the first writer of great hymns for the Church.

There were many famous musicians among physicians from the time of St. Luke up to the early part of the eighteenth century. Outstanding among these was Paracelsus whose work led to the development of chemical pharmacology and therapeutics. Paracelsus was palace organist to King Maximilian. Following the King's death he became church organist in Salzburg and as organist and composer he became famous throughout all Germany. Other physicians who were distinguished in music and whose names are well known to us are Boerhaave, Auenbrugger, Laënnec, Henle, His, Von Helmholtz, Ludwig, and Theodor Engleman.

This brings us to Theodor Billroth, the father of visceral surgery, who was the most picturesque of them all. Billroth, of course, was one of the great pathologists and surgeons of all time, but this is not the time to dwell on his professional attainments. I would rather have you think of him for the moment as Billroth the musician. He and Engleman, world-famous physiologist, were devoted friends and admirers of Johannes Brahms. It was one of Billroth's delights, as he wrote Engleman, to feel that he and Engleman stood apart from their university colleagues "since Brahms had dedicated his third string quartet to you and the first two to me". In addition to his remarkable professional achievements, Billroth was an enthusiastic and leading member of the musical life in Vienna, attending the concerts, operas and oratorios — to say nothing of the evenings of chamber music he held in his home, at which Brahms was the leading figure. It was at these informal gatherings that Brahms first presented most of his chamber music before it was heard by the public. During Billroth's day a bitter rivalry existed between the devotees of Richard Wagner and Brahms. So bitter was the rivalry that when any of Wagner's music was performed at a public performance the Brahms followers, headed by Billroth, would solemnly leave the hall — the compliment (!) being returned by the Wagner group whenever any of Brahms' music was performed.

One cannot pass the nineteenth century without paying tribute to the two greatest of physician-musicians — Hector Berlioz and Aleksander Borodin, both particularly famed as composers. Berlioz did not pursue his medical studies too long. The life of a medical student was alien to him and after he heard a performance of the opera "Les Danaides" by Salieri, he turned from medicine to music, thereby enriching the literature of music with such masterpieces as "The Damnation of Faust", "Symphony Fantastique", "Harold in Italy" and the "Roman Carnival Overature".

Borodin's life offered a strong contrast to that of Berlioz. He graduated from the St. Petersburg Academy of Medicine and eventually became world famous as a physiologist and chemist. Early in life he displayed great talent for music. At the age of twelve he had already started composing chamber music and during his student days was reprimanded by his professor for devoting too much of his time to music — "trying to chase two rabbits at the same time". Before he died Borodin had distinguished himself as a professor of chemistry, publishing twenty major articles, and yet found time to publish twelve major musical compositions; after his death nine more were published. Musical audiences to this day thrill to his great epic opera "Prince Igor", which had to be finished after his death by his friends Rimski-Korsakof and Glazunov; other Borodin classics of the highest order were his first symphony in E flat major and his second symphony in B minor. Sir Henry Hadow, the English music critic, said of Borodin — "If there be, indeed, immortality in music his claim is incontestable".

Of course there are many other musicians in our profession who deserve mention and there are a number of excellent symphonies and orchestras composed exclusively of physicians who assemble regularly throughout the country. It is also probable that many physicians meet in small chamber-music groups in their homes, as some of the old masters did. However, it is apparent that individual physicians are not attaining eminence in music or the other branches of art as they did in past years.

It is related by Dr. Adolf Meyer, when he departed from his native Europe where the great professors, Billroth, Mikulicz and others were proud of their accomplishments in music and of their musical associates, that he encountered a new colleague in this country who regarded participation in music by physicians as "a sign of degeneracy". While university faculty members today may not regard participation in music as "a sign of degeneracy", they exhibit not the slightest attempt to encourage their students to participate in music as a "sign of culture". One likes to think of a physician as a man of culture, and engagement in music or some other of the arts surely would add stature in this respect.

I have stated what I believe are major reasons for the lack of cultivation of the artistic talents that many young physicians possess. I do not like to think that the fault is theirs because they lack ambition or the willingness to work in their youth, and work hard, which is a prime requisite for excelling in any field of activity, be it a hobby or a profession. Perhaps a new kind of leadership is needed within our profession — a leadership that will stimulate young physicians to become accomplished in something beyond the science of medicine — to become well versed in the arts and humanities of life, and not the sorry victims of an epoch of techniques shorn of philosophy. Too early a preparation for a specialty which really begins in undergraduate years, followed by intensive concentration through residency years on passing board examinations leave him little time to think and make a fair decision concerning his future in medicine. Specialty board examinations in medicine serve a very useful purpose but a physician would better serve himself and the profession by engaging in the practice of medicine for a few years following his internship before preparing for the specialty of his choice. One could be sure that many would not abandon general practice once they became established in it.

Was it not William James who said the end of all education is knowing a good man when you see one. The model of the good man in my opinion, which our profession might well strive to follow, is that noble physician who I have chosen last to mention. He is esteemed throughout the world as a physician-musician-philosopher and missionary extraordinary, who is regarded by many as one, if not the greatest, of men living today — Albert Schweitzer.

Famed as a brilliant Professor of Theology at the University of Strassburg, Albert Schweitzer turned to medicine in which he was soon renowned. As a concert organist he toured Europe, winning great acclaim. As an author, he published numerous authoritative works, including an unsurpassed biography of Johann Sebastian Bach. As a missionary, he established a hospital and set out to conquer tropical disease among the natives deep in the heart of Africa. Surely, a man of God, if ever there was one.

And now I will close this essay by reciting a poem written by a physician, Dr. Josiah Gilbert Holland, who was born in Belchertown, Massachusetts, on July 24, 1819. Dr. Holland was a poet of distinction who enjoyed prestige among the literary lights of his day. Three-quarters of a century after Dr. Holland's death, Peter Marshall, who was then the chaplain of the United States Senate, and whose life is portrayed in the book by his wife "The Man Called Peter" and in the current screen film of the same name, took as the text for one of his sermons, the poem called "God Give Us Men", written by Dr. Holland:

### GOD GIVE US MEN

God give us men! A time like this demands
Strong minds, great hearts, true faith and ready hands;
Men whom the lust of office does not kill!
    Men whom the spoils of office cannot buy!
Men who possess opinions and a will;
Men who have honor; men who will not lie;
Men who can stand before a demagogue,
    And damn his treacherous flatteries without winking;
Tall men, sun-crowned, who live above the fog
    In public duty and in private thinking!
For while the rabble, with their thumb-worn creeds,
Their large professions, and their little deeds,
Mingle in selfish strife, Lo! Freedom weeps,
Wrong rules the land, and waiting
                    Justice, sleeps!

Biographical material taken from:
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# DIVISION OF THE SPHINCTER OF ODDI

## Report of a Case

Joseph F. Hughes, M.D.*

Division of the sphincter of Oddi is necessary when the opening of the ampulla of Vater is inadequate for the proper flow of bile and pancreatic juice into the duodenum. The indications for the operation according to Doubilet[1] are:

1. Recurrent pancreatitis
2. Multiple or recurrent common duct stones and ampullary stones
3. Pseudocysts of pancreas and pancreatic fistula
4. Acute cholangitis

The case which is reported in this article had a history of attacks of acute cholangitis.

### ANATOMY

The ampulla lies on the postero-medial wall of the third portion of the duodenum. Usually, the papilla lies in a recess formed superiorly by the protrusion of the posterior duodenal wall as a result of pressure from the pancreas behind it, and inferiorly by the falling away of the duodenal wall in its descent to the fourth part. The most prominent anatomical landmark in locating the papilla is the plica longitudinalis. This consists of several longitudinal folds of mucosa which arise from the inferior lip of the papilla and extend downward. When the ampulla is laid open, it is found to lie inside the circular muscle layer of the duodenum and is closely adherent to it.

In the majority of cases a true ampulla is present within the papilla. After sphincterotomy, when the duodenal mucosa at the end of the incision is pushed upward, the circular duodenal muscle, forming the superior edge of the slit through which the bile ducts and duct of Wirsung enter, can be clearly delineated arching over the common duct. The distance from the papilla to the circular muscle is usually 15 to 20 mm.

The duct of Wirsung either joins the common bile duct before the latter enters the duodenum (95%), or itself enters the duodenum separately at the ampulla of Vater adjacent to the opening of the common bile duct (5%). The duct of Wirsung is the main excretory duct of the pancreas of about 90% of the cases with a patent communication with the duct of Santorini and the duodenum at the lesser papilla in 40% to 60%.

In 10% of the cases, the duct of Santorini is the main excretory duct, entering the duodenum through the lesser papilla, always anterior and proximal to the ampulla of Vater. This distance may vary from 0.9 to 3.5 cm., averaging 2.0 cm. Under these circumstances there is usually no patient anastomosis with the duct of Wirsung.[2]

When the posterior wall of the ampulla is stretched by three traction sutures, the opening of the duct of Wirsung can usually be seen. The opening is about 4 mm. above the papilla, but may vary from 1 to 8 mm. Sometimes, the opening of the duct of Wirsung is a mere slit and can be found only by watching for flow of pancreatic juice. This flow may be stimulated by the intravenous injection of secretin.

If the ampulla of Vater is divided for a distance greater than 10 mm., the circular muscle of the duodenum may be cut. In it lies the only important artery in this area. This may bleed briskly, and, therefore, it is wise to try to avoid dividing the circular muscle.

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### PHYSIOLOGY

The back pressure in the bile and pancreatic juice is caused by the resistance to their flow into the duodenum by two separate structures, first the circular muscle of the duodenum through which the ducts pass obliquely, and second, the sphincter of Oddi which surrounds the termination of these ducts. Normal resistance averages 150 mm. of water. Following spasm of the sphincter, the resistance may rise to 250 mm. of water. If the circular muscle of the duodenum is not injured at sphincterotomy, it acts as a one-way valve or pinchcock preventing duodenal reflux after the procedure.

As far as is known, the only function of the sphincter of Oddi is to produce enough back pressure in the biliary tract to enable the gall bladder to fill. After sphincterotomy in dogs, the gall bladder is found flaccid, and, as a result of stasis, infected. Only a few drops of mucus are found in the lumen. For this reason, the gall bladder should always be removed when the sphincter is cut. As a result of stasis and other dysfunctions following sphincterotomy, gall bladder symptoms are produced which often require cholecystectomy.

### CASE REPORT

A 46 year old white woman was admitted to the hospital on February 22, 1956, with the complaint of intermittent attacks of nausea and vomiting associated with jaundice. She gave a history of vague symptoms, such as belching and flatulence, for the past several years. Since August of 1955, she had suffered attacks of acute nausea with no pain. She usually vomited bile with these attacks, often in a projectile fashion. She had two attacks of jaundice. She also had fever and chills during these spells. These attacks usually lasted two to three days.

A recent cholecystogram showed gall stones. Physical examination showed an absence of jaundice and negative findings in the abdomen. Her admission blood count revealed 91% hemoglobin, 4,580,000 RBC, 9,250 leukocytes; the differential count was normal. Urine analysis was negative. Prothrombin time was 14 seconds or 118%. Bromsulphalein dye test showed 80% retention in five minutes and no retention after thirty minutes. Direct van den Bergh was negative, and indirect van den Bergh was 0.2 mgm.% of bilirubin. Blood sugar was 90 mgm. %; blood urea was 16 mgm.%. The electrocardiogram was normal.

On February 28, 1956, a cholecystectomy and exploration of the common duct was performed with insertion of a T-tube into the common duct. The gall bladder was found to be 8 cm. long and approximately 4 to 2 cm. in diameter. The wall of the organ was thickened and measured up to 2 mm. The gall bladder contained many yellowish black facetted calculi, varying in size from 5 mm. to 8 mm. in diameter. The common duct was found to be distended; it was opened and flushed out with saline solution.

A 2 mm. dilator was passed into the duodenum with a little difficulty, suggesting a stricture at the ampulla of Vater. With great difficulty, the ampulla was dilated up to 8 mm. Then, a #16 T-tube was placed in the common bile duct.

The patient did well post-operatively. However, after the T-tube had been in for about a week, it was clamped for a short time and the patient complained of severe pain, necessitating the release of the clamp. The drainage of bile averaged about 500 c.c. daily. A choledochogram was done on March 7, 1956 (see Figure 1) and showed narrowing and irregularity at the lower end of the common bile duct. There was evidence of obstruction at the ampulla of Vater. The patient was discharged from the hospital on March 11th with the T-tube still in place.

A second choledochogram was taken on April 11, 1956 (see Figure 2). After injection of Iodochloral through the T-tube, a moderate amount of resistance of passage of the dye beyond the lower end of the common duct was found. At the ampulla of Vater, there was constant narrowing and irregularity as was noted on the previous examination of March 7, 1956. Some of the

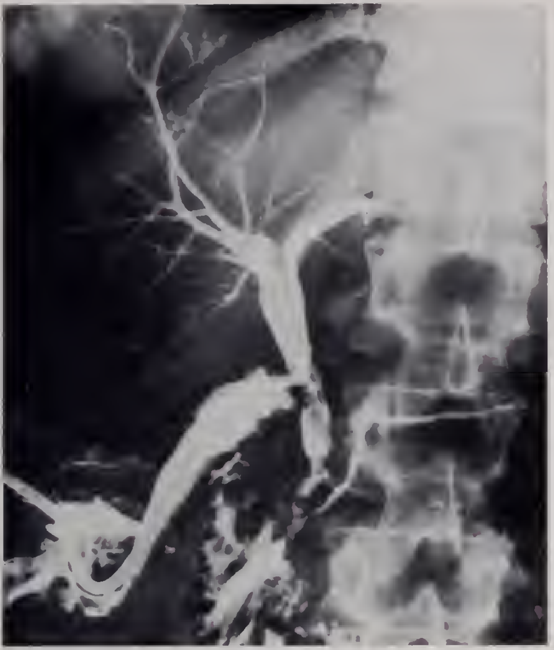

Figure 1

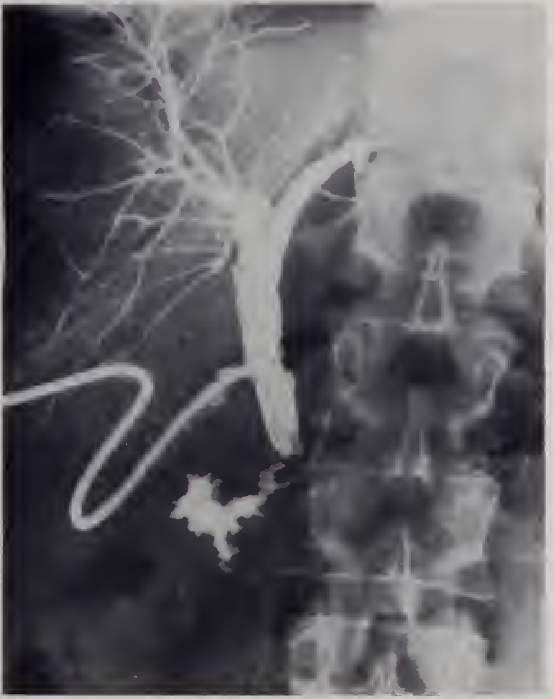

Figure 2

dye was seen to pass retrograde into the pancreatic duct. Much of the dye backed up into the hepatic radical, the patient showing some discomfort when the dye was injected into the tube, and noting some relief when the pressure was relieved and a portion of the dye was permitted to escape.

The patient was readmitted to the hospital on April 19, 1956. Her general condition was good; the T-tube was still in place and draining about 500 c.c. of bile daily. Her blood count was 3,680,000 RBC and 6,300 WBC with 74% hemoglobin and a normal differential count. Her pertinent blood chemistry examinations were normal.

Operation was performed on April 23, 1956. The T-tube was left in place and the duodenum was opened. The opening of the ampulla of Vater was found to be constricted. It was located with some difficulty, and it was necessary to inject saline through the T-tube before it was isolated. An incision about 1 cm. long was made in the superior portion of the ampulla. The duct was dilated up to 8 mm. Several #00 chromic catgut sutures were inserted into the rim of the new opening.

The patient withstood the operation well, and, aside from the fact that she had hypotension immediately post-operatively, her course was satisfactory. She had copious drainage from the T-tube; at times duodenal contents were present in the drainage. The T-tube came out spontaneously about ten days after operation. After the tube fell out, there was practically no drainage from the incision.

Since operation, this patient's progress has been good. She has had no return of jaundice or indigestion. She was seen on March 19, 1957 and stated that she had returned to work and has had no further biliary difficulties.

## Summary and Conclusions

This is the report of a middle-aged woman who had a cholecystectomy for gall stones and a routine common bile duct exploration. Post-operatively, obstruction at the papilla of Vater persisted, and a sphincterotomy was the only solution. The follow-up course has been ten months, and she has obtained complete relief of her biliary symptoms. This is a very necessary operation when indicated, and a thorough knowledge of the anatomy in the perivaterian area is essential for successful management.

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# THE PROBLEM OF EMOTIONAL STRESS IN HYPERTENSION

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Any factor which intensifies or extends the duration of the action of physiologic processes that elevate blood pressure is of etiologic importance in the genesis of sustained hypertension. As long as the individual has the capacity to adapt himself successfully to his environmental "stresses", he will remain in good health.

Essential hypertension is defined as an adaptive response of the individual to environmental stresses, particularly to those imposed initially upon the higher nervous center by the challenges of everyday living.[1] Thus, it is rational to assume that emotionally induced diseases become more prevalent as one assumes increased responsibility and must be more alert mentally.

Recurrences of unpleasant emotions usually result in effects deleterious to the individual. Clinical evaluation of the course of essential hypertension examined on the basis of the patient's adjustments to his stresses yields an impression that "life adjustment and hypertension are intimately related and that those best able to readjust themselves are most likely to lose their hypertension." [1]

It is an accepted fact that emotional stress may result in physiologic dysfunction in an organism, and, in more instances than we are aware of, cause lesions of organs. However, why individuals respond to these stresses with different types of symptoms remains a mystery. The concept that a neurogenic factor is associated with hypertension, regardless of its etiology, is still spectulative but it does warrant continued consideration. The onset of hypertension is apparently closely related to emotional factors in about 5% of patients, and other emotional factors are related to the production of symptoms and complications in about 87%.[2] Clinically, high blood pressure may be asymptomatic even in its advanced stages, or the symptoms may be severe and out of proportion to the existing blood pressure.

Environmental factors create stresses to which individuals must adapt themselves and which can and often do assume considerable importance. "High blood pressure frequently makes its appearance in a setting of emotional stress in which there is a specific relationship between the emotionally disturbing agent and the personality structure of the individual." [2] We are well aware of the sensitive individual who is easily aroused to anger, shows various degrees of resentment, is subject to states of embarrassment, and experiences other disagreeable emotions when exposed to stress. These phenomena can result in "Mental Tension," according to Berliner et al,[3] which they define as a "persistent emotional change which is always of an unpleasant quality, invariably distressing and sometimes intolerable to the patient."

Blood pressure is a dynamic fluctuating physiological response and constantly variable within certain limits. Environmental conditions modify the blood pressure at any given time, as do conscious and subconscious nervous influences.

The emotional lives of hypertensives often correlate with the onset and early course of their hypertension. The fact that they cannot adapt themselves to their environmental stresses leads to emotional disturbances manifested by symptoms whose nature, degree and extent depend on the intensity and the duration of these stresses, plus the susceptibility of the individual. Psychoneurotic symptoms are: (1) often multiple, dispersed, and do not conform to any clinical entity; (2) associated signs and symptoms of emotional disturbances such as irritability, excitability, and inability to concentrate are frequently present; (3) physical examination is either negative or yields insufficient evidence to explain the symptoms, and (4) there is a close relationship between periods of stress and the appearance of symptoms.[1]

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The therapeutic approach to hypertension should include a carefully solicited history which frequently is revealing as to the patient's environmental stresses: those stresses which are amenable to discipline, such as occupation, salary, disease, family relations, affection, sexual problems, relations with working associates and friends, and other conditions. These factors cause the emotional phase of hypertension and develop the anxiety tension state so frequently observed.

The treatment of hypertension has one major goal, namely, to prolong the patient's life through the reduction of blood pressure and the relief of associated symptoms. Failure to achieve this goal in many instances may rise from the fact that too much attention is concentrated in reducing the blood pressure and the failure to recognize the emotional origin of many of the symptoms attributed to high blood pressure.

Would particular attention to the anxiety tension states created by emotional conflicts have a salutary effect on the hypertensive patient? To evaluate this approach to the problem it was decided to use Dimethylane (0.25 gm. per each enteric coated capsule), Reserpine (0.25 mg. tablets) and a combination of Dimethylane 250 mg.-Reserpine 0.25 mg. in enteric coated capsules.*

Our experiences with Dimethylane in the management of tension states related to menopause[5,6] dysmenorrhea[7] (confirmed by Vivino)[8], poliomyelitis[9], and tension states related to occupational stress[10] prompted us to apply this treatment in the hypertensive state exhibiting anxiety tension resulting from emotional stress.

There is extensive medical literature on the use of Reserpine in the management of the hypertensive state, and its beneficial effects in certain agitated psychiatric states have been documented by investigators.

This report will present observations in 48 hypertensive patients exhibiting anxiety tension states resulting from emotional stresses.

## MATERIAL, METHODS AND RESULTS

Of the 48 patients, 30 were men with an average age of 38 years, and 18 were women with an average age of 41 years. All of these patients were white, and held positions involving various degrees of responsibility. These patients had mild to moderate hypertension, based on a diastolic pressure of 100 to 140 mm. Hg.

The patients were divided into three groups as follows:

*Group I.* Consisted of 20 men and 8 women treated with Dimethylane (0.25 gm. in enteric coated capsules). The patients were given two capsules after breakfast, two capsules after lunch, and two at bedtime. This schedule was maintained for seven to ten days, and then the dosage after lunch was eliminated. Treatment was continued for eight weeks.

A state of relaxation lasting two to three hours was produced in all of the patients. They reported no interference with mental acuity and were able to perform their duties without experiencing the distressing tension symptoms which were causing their original complaints. Of the 28 patients in this group, only ten manifested an apparent stabilization of blood pressure. Although the associated symptoms in 18 patients were controlled the patients were improved, the drop in blood pressure was not significant.

*Group II.* Consisted of 14 men and 6 women treated with Reserpine (0.25 mg. tablets). The patients were given one tablet four times daily for one week, after which the dose was reduced to two tablets daily and continued for eight weeks.

Most of the 20 paients in this group achieved a relaxed sense of well-being, but not so quickly or as great as those in Group I. Five patients felt that they were dulled and slowed up in mood and motor activity. There was a slow, progressive drop in the blood pressure in 13 of these patients in the eight weeks of this treatment.

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*Dimethylane 250 mg.-Reserpine 0.25 mg.-enteric coated capsules supplied as Avacalm by Medical Research of the National Drug Co., Philadelphia, Pa.

*Group III.* Consisted of those patients in Groups I and II who failed to respond adequately to the treatment. There were 18 from Group I and 7 from Group II in whom the blood pressure was not significantly stabilized. These patients (including the five who complained of the undesirable effects of treatment) were placed on Dimethylane 250 mg.-Reserpine 0.25 mg. in enteric coated capsules; one capsule was given in the morning and two at bedtime for seven weeks. The blood pressure of 14 of the 18 patients previously treated with Dimethylane alone was reduced to within normal range, and the beneficial effects of relaxation were maintained.

All of the patients from Group II responded favorably. The five patients who complained of undesirable effects while on Reserpine had no such complaints referable to Dimethylane-Reserpine treatment. The blood pressure was stabilized and maintained in this state for a longer period of time than possible with either Dimethylane or Reserpine alone.

These observations conform to those reported by Drezner and Horoschak,[11] who found that the hypertensive state was stabilized at normal limits within eight weeks in 86% of the patients treated with this combination.

We have gained an impression from our observations to the effect that patients with the most severe complaints of anxiety tension as a result of emotional stress obtained a greater degree of beneficial and gratifying relaxation from the treatment. The less tense patients did not respond to the same degree.

## COMMENT

Dimethylane has a definite capacity to produce relaxation and mild tranquilizing effect in anxiety tension states. In some patients its action on high blood pressure is commensurate with its relaxing and tranquilizing abilities.

Reserpine exhibited a gradual continued action on high blood pressure. Its relaxing and tranquilizing effect was adequate, but not as rapid or sustained as it was with Dimethylane. Dullness of the mood and interference with motor activity are unfavorable tendencies of this drug.

Dimethylane apparently neutralizes the untoward reactions produced by Reserpine while the Reserpine enhances the action of Dimethylane in the mild to moderate hypertensive states.

It is evident to us that the combination of Dimethylane-Reserpine (Avacalm) warrants further studies in the management of the mild to moderate hypertensive state associated with emotional stress.

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# STATUS ASTHMATICUS IN INFANT SISTERS

Frank J. Gilday, M.D.* Vincent deP. Maguire, M.D.**
and Clifford R. Brooks, M.D.***

It is always interesting to hear of sibilings who have the same disease, even considering that hereditary factors predominate in certain diseases and in families. A recent report by a member of the Clinical Research Department of the St. Francis Hospital[1] concerned the occurrence of juvenile diabetes in identical twins.

Although the subjects of the present report are some months apart in age, the course of their asthma was remarkably similar.

The first baby was eight months of age when she was admitted to the hospital on February 12, 1956 because of wheezing and dyspnea. The history was that she had been delivered at term following a normal pregnancy, was breast-fed for three weeks, and then was given a formula of evaporated milk and water. She vomited frequently within one week after the bottle feeding was started. She was given Pablum at two and one-half weeks and this was immediately followed by solid strained foods. A facial rash was noted after the ingestion of carrots and green beans but she had no noticeable reaction to eggs or oranges.

At the age of six months, the baby developed the first asthmatic attack. She was then asymptomatic until one month later when wheezing recurred. For the next month, patient was able to sleep comfortably, but on February 8, 1956, she began to sneeze. This was followed by a profuse rhinorrhea. The next day, the patient developed respiratory difficulty with wheezing.

The baby was gaining weight and was normally active. The family history revealed allergy on both maternal and paternal sides and the father had hay fever.

The baby was alert and tachypneic but the color was good. Examination of the nose revealed mucosa of normal color with some clear mucous discharge. Throat was normal, but there was some clear mucous secretion in the posterior pharynx. The chest was symmetrical with equal expansion. The lungs revealed moist rales. The heart was not enlarged to auscultation, and sinus arrhythmia was present. The heart rate was 160.

The impression was bronchial asthma.

The blood count was normal, the eosinophiles being 4%. Urine analysis was also normal.

The baby was placed in a croupette and was given oxygen and Alevaire. She also received aminophyllin suppositories, Meticorten, potassium iodide, elixir of benadryl and neosynephrine nose drops. Fluids were forced.

The baby ran a low grade fever, not exceeding 101.4° rectally. Marked improvement in the asthma occurred in 24 hours, and the temperature dropped to 99° rectally at that time. The baby was discharged from the hospital on February 14, 1956.

Intradermal tests performed in the Allergy Clinic after the patient was discharged were positive for the following allergens: dust, feathers, silk, rabbit, wool, corn meal, carrot, beef, oranges, alternaria, aspergillus, cephalosporium, fusarium, penicillium, and brewer's yeast. A hyposensitization program was started with Endo's house dust and Lederle's catarrhalis influenza vaccine. The injections were given once a week. Other measures for eliminating dust were instituted.

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The sister was apparently in good health until she was one year old, when she developed a hard dry cough which persisted until the time of admission to St. Francis Hospital six months later. As an infant she was subject to frequent colds, especially when cutting teeth. She apparently was well between attacks. At one month of age, eczema appeared on the cheeks, mouth, antecubital fossa and forehead. The eruption appeared more marked around the mouth after the ingestion of spinach and carrots.

Wheezing was first noticed by the mother when the child was six weeks of age. This occurred after the ingestion of breast milk and when solid food was first added to the diet. All solid food that was added to the child's diet caused wheezing. There had been pruritus of the nose and eyes since infancy. Rhinorrhea was present since the onset of the asthmatic symptoms.

The first severe attack of asthma began on November 26, 1955, preceded by three days of coryza. This child was admitted to the hospital on this date.

Physical examination on this 18-month old white child showed the following abnormalities: There was wheezing and bronchial breathing all over the chest on ausculation but no audible rales were heard. No murmurs were heard and the heart seemed normal to ausculation. The child was cyanotic and had great difficulty breathing. The impression was bronchiolitis with asthma.

The white blood count was 26,250. The differential count was normal. X-ray of the chest revealed relative emphysematous appearance of both lungs which showed no parenchymal changes. The heart shadow was within normal limits. The cough plate revealed no evidence of whooping cough. The throat culture showed a growth of gram positive Staphylococcuc Albus and Aureus, also some gram positive diplococci, similar to diplococcus of pneumonia.

She was placed in an oxygen tent and was given Alevaire continuously. She was given penicillin, streptomycin and elixir of benadryl. Obstructive phenomena were ruled out and the child improved. The wheezing gradually decreased and, after one week, the patient was discharged from the hospital greatly improved.

Allergic testing was performed by one of us. The positive tests obtained were to timothy grass, orchard grass, plantain, lambs quarters, house dust, wool and feathers. To foods, there was a moderate reaction to egg white, and a slight reaction was noted to beef and chicken. There was also some reaction to lima beans, string beans, apples, bananas, strawberries, brewers' yeast, hormedendron, mucor, fusarium, alternaria, aspergillus, cephalosporium, cheatomius and trichophyton.

Treatment was started but before any effects were obtained the patient was again admitted to the hospital with shortness of breath, wheezing and rhinorrhea.

Examination showed enlarged tonsils. The chest was normal in appearance, but much wheezing was heard in both lungs. The heart sounds were normal. The blood count again showed a leucocytosis of 16,000, with neutrophiles and lymphocytes normal. Urine analysis revealed a trace of albumen, but was otherwise normal.

The treatment was similar to that of the first admission with the addition of Meticorten and aminophyllin suppositories. In four days the child was much better and the temperature had returned to normal from its initial level of 100.4° rectally.

## Differential Diagnosis of Status Asthmaticus

The physician should be cautious about ruling out other conditions that produce the dramatic disabling symptoms associated with this disease. Conditions of this sort may be conveniently classified and discussed as follows:

*Aspirations:*

Gases and fumes such as parathion, ammonia and other industrial and household chemicals in gaseous states.

Solid foreign bodies such as food, peanuts, toys, safety pins and beads.

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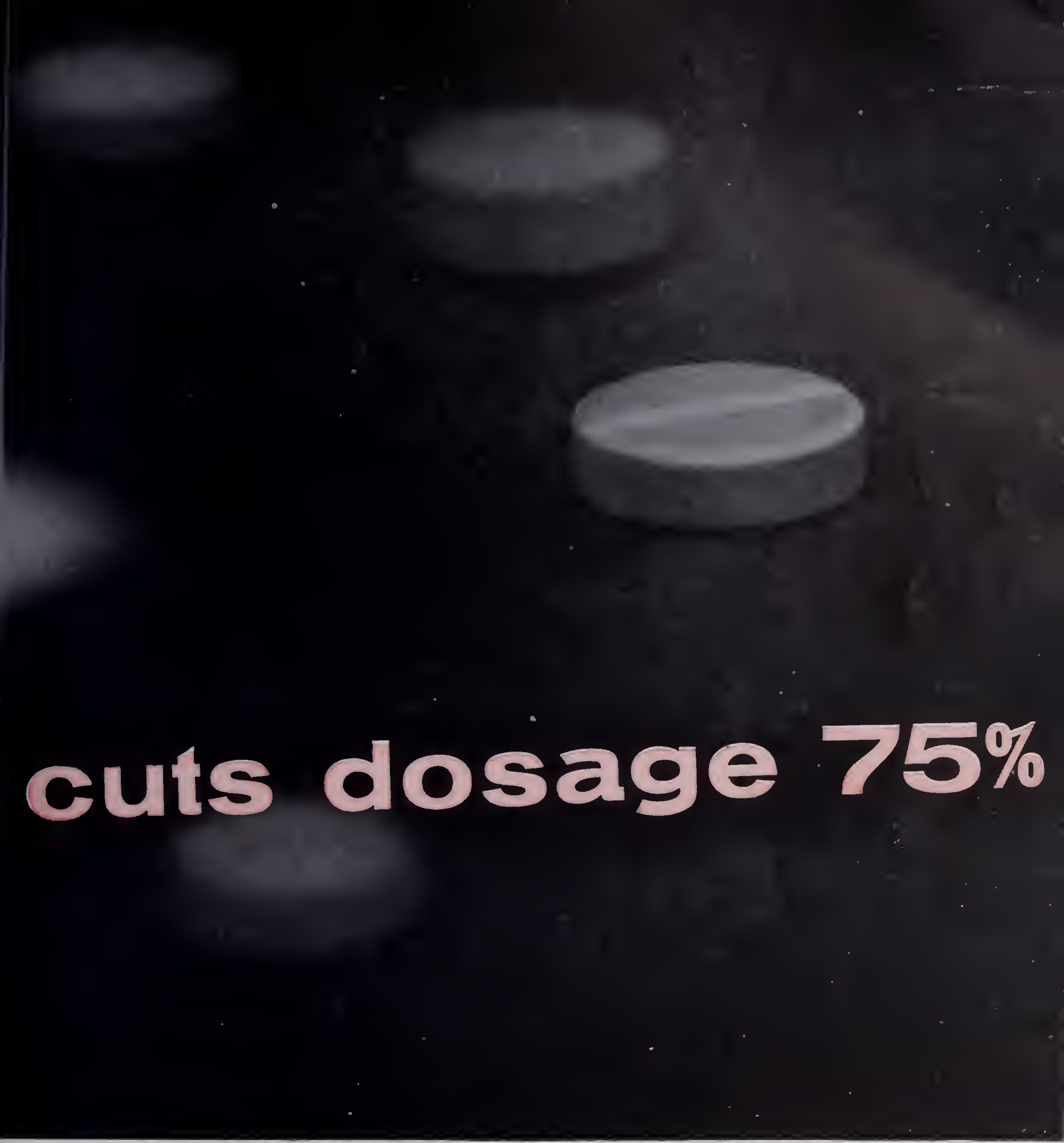

**LOW DOSAGE:** a total maintenance dose of only 2 tablets daily.

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**CONVENIENCE:** The low adult dose of 1 Gm. (2 tablets) per day offers optimal convenience and acceptance to patients.

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*Ingestion:*

Ingestion of insecticides or chemicals and drugs may lead to the development of symptoms of respiratory distress simulating severe asthma. It is well known that aspiration is not necessary for the production of severe respiratory symptoms with fuel oil ingestion in children.

*Infection:*

Croup, bronchiolitis, asthmatic bronchitis, diphtheria and ascariasis are a few of the disease states which may produce symptoms severe enough to simulate status asthmaticus.

The mechanism of production of the symptoms of obstruction to the airway will in each case be found to vary in degree among allergic, true inflammatory and anatomic or structural causes. Spontaneous pneumothorax or other lung or thoracic conditions of sudden development with which are associated distortion of mediastinal structures are certainly frequent enough to be mentioned here.

## TREATMENT OF STATUS ASTHMATICUS

*Environmental control:*

Allergy-free room must be provided. Plastic covers for the mattress and pillows. The room must be devoid of curtains, drapes, rugs, dust, flowers and, sometimes, relatives. Avoid exposure to freshly painted rooms, sudden changes in the temperature, odors and fumes.

*Rest and Reassurance:*

Absolute rest, both mental and physical. Reassurance must be provided by the physician.

*Correction of dehydration:*

Patients are often depleted of fluids and fluid balance must be obtained. Intravenous fluids are administered for correction of dehydration. Minerals, vitamins and medication may be added to the intravenous solution.

*Drug therapy:*

Sympathomimetic or Adrenergic drugs. Epinephrine (adrenalin) in a 1:1000 solution used subcutaneously is of particular value in relieving the acute attack.

Aminophyllin administered intravenously in a 0.5 gram dose eases respiratory difficulty in a few minutes. This must be given slowly. Rectal suppositories are helpful but act more slowly. Oral administration is useful, but often causes gastric irritation.

*Expectorants:*

Potassium iodide and similar compounds are used primarily for their action in liquefying mucous secretions and facilitating removal of secretions.

*Sedation:*

Chloral hydrate may be given orally in doses from 0.5 to 1.5 grams for adults, and reduced doses for children.

*Steroids:*

These should be used where patient has failed to respond to conventional methods of treatment. For control of asthmatic symptoms, steroids exert an anti-inflammatory and anti-allergic activity. The newer steroids are administered in reduced dosage and are devoid of salt- and water-retaining and potassium excretion tendencies. The dangerous complications must be considered before administering steroid hormones.

*Other drugs:*

The antihistamines have little place in the treatment of bronchial asthma. If there is any benefit derived from them, it is purely from the sedative effect they exert.

The use of narcotics (morphine, demerol, dilaudid) is prohibited in the treatment of bronchial asthma. Intermittent positive pressure breathing is a means of improving respiratory function. It is effective in the relief of dyspnea and anoxia, and for the administration of aerosol therapy.

## SUMMARY

Drug therapy in the management of bronchial asthma has been briefly reviewed. The steroids have been mentioned in the symptomatic relief of asthmatic symptoms, but never replace good allergic management. The potent drugs never cure asthma, but only afford relief.

The presence of one disease in a family may enable us to create an environment to prevent other members of the family from contracting the same ailment. If this is not possible, then the disease may be made less severe. We should test other sisters or brothers and attempt to bring their allergies under control before they reach the symptom level.

The sisters reported in this paper were 8 and 18 months of age when they developed status asthmaticus.

### REFERENCE

1. Bohan, E. M.: Diabetes mellitus in juvenile identical twins, Delaware State M. J., 26:285, 1954.

# DIABETES MELLITUS, PSEUDOPANCREATIC CYST, AND LOW SALT SYNDROME: PART II

Edward M. Bohan, M.D.,*
Girard S. Serino, M.D.,**
Peter J. Olivere, M.D.***

In November 1955, Part I of this case report was published in the Delaware State Medical Journal.[1]

### Summary of Previous Report

The patient was born in 1901, and was a known diabetic since November 1944. She was admitted to St. Francis Hospital on August 10, 1955. During the two weeks preceding her admission, she had a nonproductive cough, frequent vomiting, pains in the calves of her legs, a frontal headache, backache, and drenching sweats. A fever was present for two days before admission. Her weight was 126 pounds. She was treated for acidosis. The acidosis was corrected, but she continued to have a low-grade fever. A mass was palpated in the upper left epigastrium.

An intravenous pyelogram showed a large retroperitoneal collection of gas outlining the lateral border of the left kidney. There was some displacement medially of the left kidney and upper left ureter. An upper G. I. series showed a partial blocking of the middle one-third of the duodenal loop. This was caused by the large collection of air and fluid which was compressing this loop and delayed the emptying of the stomach. The lateral decubitus film showed the air fluid level extending from just below the diaphragm to a level just below the iliac crest. Some air bubbles were seen spreading through the overlying tissue of the lateral abdominal wall.

A huge cyst, probably a pseudopancreatic cyst was found at operation. The patient had a stormy post-operative course with low salt syndrome and severe post-operative shock. The cyst drained for eight months, but the patient made a good recovery.

Cysts of the pancreas in diabetes mellitus are very rare. Only 1 of 127,018 admissions to the Lahey Clinic was so classified. Classical descriptions aid diagnosis, viz., "a fairly large, hard, rounded mass in the left upper abdominal quadrant which is thought to be an enlarged liver or spleen"—"a cystic swelling in the epigastrium must always raise the suspicion of a pancreatic cyst."

Only a small percentage of pseudopancreatic cyst can safely be managed by total excision. Some type of drainage must be established in the majority of cases. It was impossible to remove this cyst because of its size and because of the patient's poor condition on the operating table.

The disadvantage of external drainage and marsupialization are obvious. These procedures are associated with some mortality and with a much higher morbidity. Persistent fistulous drainage, excoriation of the abdominal wall, and premature closure of the sinus tract are far too commonly observed.

Internal drainage by cystgastrostomy or cystjejunostomy is often done, but this was not possible in this case because of extensive necrosis and friability of tissues. The cyst wall was entirely necrotic and the only treatment possible was external drainage.

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## Final Admission

The patient was readmmitted to St. Francis Hospital on April 29, 1956. The admission diagnosis was bronchopneumonia and healed pseudopancreatic cyst. On admission, the patient had a temperature of 101° and her temperature varied from normal to 105.3° until her death on May 16, 1956. She also had chills, nausea and vomiting and complained of weakness and anorexia. Her diabetes was out of control, as evidenced by the $CO_2$ combining power of 25 vol.%, and the blood sugar of 292 mgm. per 100 cc. of blood. She had a mild anemia, and the white cell count was 11,550. The blood urea was 28.6 mgm.

Within two to three days, the $CO_2$ combining power rose to 52 vol.%, and the blood sugar varied from 284 mgm. to 390 mgm. The blood urea was only slightly elevated to an average of 25 mgm. The $CO_2$ combining power varied from 37 to 41 vol.% in subsequent readings. Urine analysis showed 1+ albumen, 3+ sugar; acetone and diacetic acid were negative. The microscopic urine examination was non-contributory to the diagnosis. The urine culture showed a growth of gram negative Escheriae Coli. This culture was repeated with the same result. Electrolyte studies revealed serum chloride 106.8 mEq.-liter, serum sodium 133 mEq./liter, and serum potassium 4.45 mEq./liter.

The examination showed an emaciated patient, who had lost thirty pounds since August 1955. The abdomen was soft, and the draining sinus had completely healed. The impression was that the patient had bronchopneumonia and this was verified by an x-ray examination. There was evidence of extensive pulmonary infiltrative changes over the right upper lobe, with some less extensive changes noted over the left upper lobe. It was believed that these changes represented bilateral pneumonia, probably of a virus type. X-ray examination of both kidneys showed satisfactory function with evidence of mild hydronephrosis of the right renal pelvis and evidence of two calculi in the right kidney. Perinephric abscess was considered because of tenderness over both kidney regions posteriorly. Repeat white blood counts were all in the 10,000-11,000 range. A blood culture taken on May 5th revealed a growth of Pseudomonas.

The electrocardiogram was normal. An ECG taken on the previous admission had shown electrolytic changes.

The patient died on May 16th.

## Pertinent Autopsy Findings*

Three old surgical scars were present in the skin of the abdomen, one in the lower abdomen in the midline, one paramedian incision in the left hypochondrium, and one in the right hypochondrium. All of these old scars were well healed. The nutritional status appeared satisfactory.

**Lungs:** The left lung weighed 750, and the right 850 grams. The pleura of the left lung was thickened and an exudate was attached to its visceral surface. The lower lobe of the left lung showed multiple small abscesses, all of which contained greenish pus. The bronchi throughout the left lung showed a reddish mucosa, and contained pus. A small amount of pus was present in the bronchi of the right lung, but no abscesses were present in this organ.

**Peritoneal cavity:** Numerous fine adhesions were present in the peritoneal cavity, but these did not appear to have produced any obstructive phenomena. The great omentum was adherent to the region of the gall bladder.

**Liver:** Weighed 2,000 grams. The right lobe of the liver was riddled with numerous abscess cavities, and the veins contained old and recent thrombi. Around the thrombi pus was forming, and the picture was that of a suppurative pyeophlebitis. No abscesses were noted in the left lobe of the liver.

**Gall bladder:** The gall bladder had been removed; common bile duct was patent. Omentum was adherent to the gall bladder bed.

**Spleen:** The spleen was enlarged, weighed 310 grams, was soft, and of purplish hue, presenting the typical appearance of a so-called septic spleen.

**G. I. tract:** appeared normal.

**Pancreas:** The pancreas appeared normal in all respects. No evidence of a cyst could be seen.

**Kidneys:** The left kidney weighed 120 grams, and was embedded in a mass of firm, fatty tissue which was dissected away with some difficulty. The fatty tissues around the kidney were indurated and it was felt that they might possibly represent a perinephric abscess. No definite abscesses were noted in the kidney substance, although there was the possibility that a pyelonephritis might be present on histological examination. The cortex of the left kidney was reduced in amount, and the vessels were somewhat prominent.

The right kidney weighed 140 grams, and appeared normal.

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* Autopsy performed by Dr. Joseph W. Abbiss, Pathologist, St. Francis Hospital.

### MISCROSCOPIC

LUNGS: The lungs showed multiple abscesses. In addition, there was a patchy bronchopneumonia present.

LIVER: The liver showed marked congestion, with fatty change and numerous abscesses were present in the parenchyma.

SPLEEN: The spleen was markedly congested.

PANCREAS: normal.

KIDNEYS: The kidneys showed a chronic pyelonephritis and in the left kidney an old infarct was noted.

CULTURES taken from the lung abscess and liver abscess gave a growth of Pseudomonas species similar to that isolated from the blood culture during life.

## SUMMARY

A patient with diabetes mellitus and a huge pseudopancreatic cyst recovered from surgical procedure at which external drainage was performed. The drainage continued for eight months, then ceased. However, the patient developed a bronchopneumonia, and died on May 16, 1956 of a B. Pyocyaneus septicemia.

### REFERENCE

1. Bohan, E. M., Serino, G. S. and Olivere, P. J.: Diabetes mellitus, pancreatic cyst, and low salt syndrome, Delaware State M. J. 27:276, 1955.

(ED. NOTE: The fascinating subject of cysts in and near the pancreas is complicated by an unduly confused terminology. In the past the terms *pancreatic cyst, pseudocyst of the pancreas,* and *pseudopancreatic cyst* have been used interchangeably, frequently by the same author. This obviously is in error because these terms clearly indicate three separate and distinct lesions. The authors of this article deserve credit for adding a valuable case report to the literature. An excellent bibliography on the entire subject is incorporated in an article by S. K. Sen, M.D., "Pseudopancreatic Cysts" which was published in the Journal of the International College of Surgeons, page 179 (August) 1956.)

# SOMATIC TREMOR SIMULATING ATRIAL FLUTTER*

W. J. HOLLENDONNER, M.D.**

Electrocardiographic artefacts due to somatic tremor are usually mentioned in the literature only to suggest methods of elimination.[1,2] Due to their gross irregularity they are easily recognizable in most cases. Occasionally, however, the interference is regular and may readily be mistaken in the electrocardiogram for a cardiac arrhythmia. This is particularly true of the tremor due to Parkinson's disease in which the interfering wave may resemble the "F" wave of atrial flutter.[3]

### REPORT OF CASE

A 59 year old printer was admitted to the Philadelphia Veterans Administration Hospital with a history of progressive shortness of breath. A diagnosis of Parkinson's disease had been made ten years previously because of a tremor involving his right arm.

Cardiac examination on admission was unremarkable except for a precordial systolic murmur. On re-examination several days later, a rapid regular "clicking" sound was heard in the second right intercostal space. Examination of an electrocardiogram which had been taken earlier in the day revealed the presence of a rapid, regular deflection at a rate of 280 per minute which superficially resembled atrial flutter. (Fig. 1) Closer inspection, however, revealed that each QRS complex was preceded by a "P" wave and that the more rapid deflection was probably due to the patient's tremor.

Subsequently, a phonocardiogram was taken with a simultaneously recorded electrocardiogram. (Fig. 2) This revealed that the rapid deflection in the electrocardiogram coincided with the rapid "clicking" sound. Both disappeared when the patient's right arm was forcibly restrained thereby eliminating the tremor.

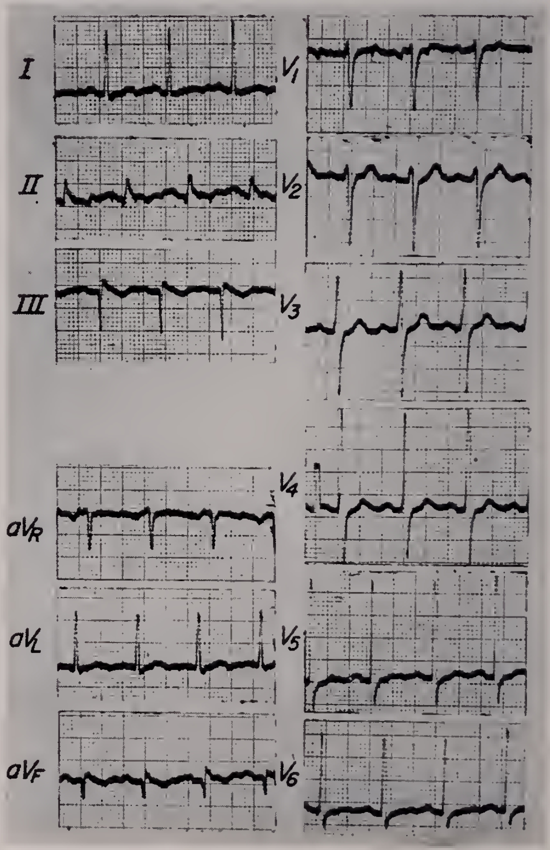

FIGURE 1

Initial electrocardiogram. Deflection resembling flutter wave can be seen particularly well in leads 2 and V1.

### SUMMARY

1. A case is presented in which a somatic tremor produced a rapid regular deflection in the electrocardiogram resembling the "F" wave of atrial flutter.

2. The tremor also produced a rapid regular "clicking" sound similar in character and location to that described in atrial flutter with a high degree of A-V block.

3. A phonocardiogram revealed the simultaneous occurrence of the sound and the electrocardiographic deflection and their disappearance when the patient's arm was restrained.

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*From the Medical Service, Veterans Administration Hospital, Philadelphia, Pennsylvania.

**Resident in Medicine.

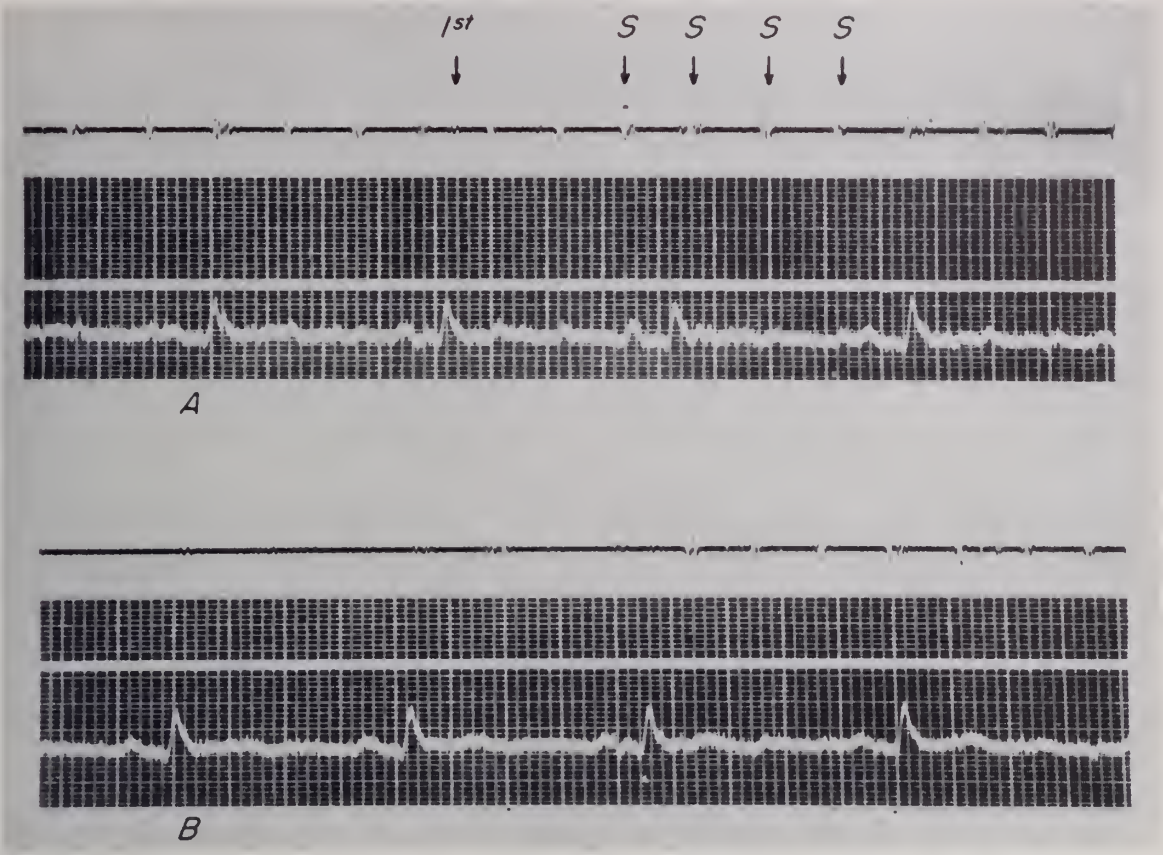

Figure 2

Phonocardiogram.

A. Simultaneous recording of lead 2 and phonocardiogram over second right inter-costal space.
  1st = First heart sound of low amplitude.
  S = Sound due to somatic tremor.

B. Initial portion of tracing taken with patient's right arm restrained revealing only low voltage first heart sound. Latter portion of tracing reveals recurrence of tremor and "clicking" sound.

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# WOMAN'S AUXILIARY

## MESSAGE OF STATE AUXILIARY PRESIDENT

The Woman's Auxiliary is a powerful ally of the American Medical Association. To help them meet the many problems of health today, and, to maintain our record of accomplishment, we need every eligible physician's wife in our organization. Membership is a privilege and offers an opportunity for service among congenial friends. The Auxiliary is the organization which guides the course of our service.

Mrs. Roger Thomas, by virtue of her office, President-Elect, is Organization Chairman. This year, she has extended an invitation to every one eligible for membership. If each auxiliary member will consider herself a member of this committee and contact, within her respective community, those eligible for membership, our list could be greatly increased.

Many groups compete for the time of the physician's wife and it would be prudent to contact her before she makes other commitments. After she is elected to membership, another friendly gesture would be to offer transportation to and from the meetings. Many dislike to go alone, then too, not all doctors' families are two car families.

The new member has certain responsibilities, also. She should make every effort to become an active worker; this will lead to friendship with wives of the other physicians. Much will be lost if she does not enlarge her sphere of auxiliary activities by attending county, state, and yes, national meetings. She will find much satisfaction, both in her association with women from all over the state and the feeling that goes with a job well done.

May I ask each member to make a real effort to spread friendliness so that the new member will look forward to all meetings?

Frequently, many reasons are offered by wives, when they are not interested in becoming auxiliary members, as the following poem, written by Mrs. N. M. Reiff, so aptly portrays. Mrs. Reiff is the Editor of the Ohio Medical Auxiliary News and has very graciously consented to share this poem with our membership.

### "WE'RE SO OVER-ORGANIZED"

You ask me to join the Medical Auxiliary?
That's just impossible, for you see
I belong to so many other things
That I'm as busy as can be!

First, there's my Music Club
I usually attend and just float,
I have no business in it
For you see — I don't know a note

Then to the Literary Club I go
Tho' most programs are quite dry
For understanding the papers —
I'm afraid I don't even try.

Of course, there's the P.T.A. at school
(I feel I owe my children this)
So that Johnny's room can get the banner
I always go — I never miss!

Every Tuesday evening there's D.A.R.
(It's so interesting to follow my Tree)
Ancestors are very nice to know,
But I wonder? Are they proud of me?

Oh, there goes Nancy Gray
A nurse she's crazy to be
She doesn't have the money
Nor anyone to help her, you see.

You say the Auxiliary has a fund
And has nurses already through?
You'll be glad to give them Nancy's name?
She will be happy, if you do.

"TODAY'S HEALTH" — What is that?
I'm sure a copy I've seen.
You say the doctors publish it?
Whatever do you mean?

*(Continued on Page 130)*

# ✚ Guest Editorials ✚

## LIFE-IN-DEATH

"There is a new way of dying today. It is the slow passage via modern medicine . . . If you are going to die it can prevent you from so doing for a very long time." So begins a poignant article in the *Atlantic Monthly* in January, 1957, and the venerable periodical, itself used by many a physician from the time of the little autocrat, observes that the large metropolitan hospitals have "made dying . . . an ordeal which has somehow deprived death of its dignity."

This is an article that cannot be summarized. It should be required reading for physicians, and perhaps it is as important that the graduate of 1957 contemplate the issues involved as it is for him to ponder on the oath of Hippocrates itself. For the essay treats of issues that Hippocrates knew nothing about; they are strictly modern. Today's graduate falls heir — and with no extra effort — to the immaculate, modern aseptic skills that can keep a diseased, half-dead, cancerous body alive, by intravenous nourishment and with the magic of penicillin and round-the-clock special nursing, so long that the doctor may emerge in the eyes of kin with little resemblance to the wise and understanding family physician of yesteryear. In the picture known to most physicians the kindly, bearded humanitarian sits quietly by the bedside waiting for his little patient to die or to recover: the decision is not his. There is hidden ignorance and sentimentality in the picture, but there is paradoxically great strength, beauty and spiritual dignity implicit in the situation portrayed. Much of this is denied today to members of the healing profession; and paradoxically, again, this decrease in dignity and rapport with the bereaved seems in inverse proportion to the efficacy of the medical sciences to prolong life. Perhaps there is no alternative, for certainly euthanasia is repugnant to every ideal of medical tradition. On the other side of the coin, however, is an approaching specter that looks almost as ghoulish and quite as menacing as euthanasia itself. Physicians have glimpsed this apparition for some years.

In "A Way of Dying" a widow tells not only of having glimpsed the apparition but also of having come to grips with it face to face and almost in battle for "the right to die," as one clergyman has called it, of her beloved:

> We cannot inquire from the dead what they have felt about this deterrent. As they fight for spiritual release, and are constantly dragged back by modern medicine to try again, does their agony augment? To those who stand and watch, this seems like a ghastly imposition against God's will be done. Apparently there is no mercy which the family may bestow at such a time.

There is indeed today at times a new way of dying; the passage may be slowed to the point where Coleridge's disturbing stanza becomes the definition of a reality; and the ghastly reality poses a scientific as well as a metaphysical question: "What is Life and what is Life-in-Death?"

Her lips were red, her looks were free
Her locks were yellow as gold
Her skin was white as leprosy
The Night-mare Life-in-Death was She
Who thicks man's blood with cold.

We acknowledge with thanks the permission of the Editor of the New England Journal of Medicine to reproduce in its entirety the above Editorial that appeared in the issue of April 18, 1957.

## STOP - LOOK - LISTEN

Elsewhere in this issue of the Journal is a paper describing an electrocardiographic artifact that, upon casual examination, had been considered to be evidence of a serious cardiac arrhythmia. The lesson to be learned from this article is not limited to the narrow field of electrocardiography. Every laboratory procedure, x-ray technic and clinical examination is subject to technical error and such errors frequently masquerade as deviations from the normal. It is the responsibility of the person who interprets any such test to be certain that the record is a true one of the phenomenon under consideration. Such insight is essential in dealing with modern diagnostic techniques.

I have my Sewing Club, my bridge club,
my golf
But Recreation is a must
I want to enjoy all my friends
I won't sit home and r-u-s-t.

The A.M.E.F.? Sounds like a government
group:
Just what is it that they do?
You say it is to train new doctors
And the Auxiliary helps do that too?

It sounds nice but I can't join —
This town has too many clubs,
We go to so many luncheons
We are all getting fat as tubs.

Mental Health? I've heard of that.
Civil Defense? That's a bore!
You surely cover a lot of ground —
Don't tell me there is more!

Oh, I like to discuss our Medical problems
But, of course, I never dare!
You say if I belonged to Auxiliary
I could always do it there?

I am so over-organized —
I'm ALWAYS running in a flutter,
But there is lots of truth in what you say—
Medical Auxiliary may help my "Bread and
Butter".

Every auxiliary member has many demands on her time. The giving of some of her interest, time, and effort to the auxiliary of her husband's profession is appreciated.

# MENTAL HEALTH AND THE AUXILIARY

April 28-May 4, 1957 is set aside as Mental Health Week for the year 1957. This is the week when a concentrated effort is made to bring before the public the problems and needs of mental health, to educate people to recognize the importance of mental health and how to cope with the lack of it, and to make people aware of the fact that mental health and mental illness are here to stay and it is up to us to face reality and accept it as a social responsibility.

The Woman's Auxiliary to the Medical Society of Delaware has for many years had a committee working in the interests of Mental Health. The women of the New Castle County Auxiliary have been especially active in the Mental Health program, participating in the activities at the State Hospital and serving on its Auxiliary. Unhappily all of the problems and responsibilities in coping with Mental Health cannot be remedied in one concentrated week. It is a social obligation that camps on the doorstep of every home every day in the year and as Auxiliary members, one must be aware of it and treat it as a year-round project.

The National Auxiliary Chairman of the Committee on Mental Health, Mrs. Aaron Margulis, of Santa Fe, New Mexico, read a classic paper on Mental Health at the mid-year Conference in Chicago in 1955, discussing the part the doctor's wife plays in Mental Health and chiefly the problems she has in retaining her own state of mental health what with her husband's irregular hours, habits, and mode of living, plus his children to whom she must be mother and father, and last but not least his patients with whom she must deal by telephone or doorbell. It was given in a very humorous vein but did not fail to bring out the underlying truth that mental health, like charity, begins in the home and this is decidely true in the doctor's home. It is not a little thing to keep one's home a haven of peace and relaxation when it is under a constant barrage of demands from the public, and the burden of the task falls upon the wife and mother to keep things on an even keel. The mental health of one's family is either nurtured or destroyed by the influence of one's home and with the pressure of modern social trends never has the quiet and security of a loving family been more important to the individual.

The Woman's Auxiliary to the Medical Society is an out-going organization and there is little in the community in which the Auxiliary is not concerned, either as a group or as individuals. Participation in the community problems of mental health begin with education, through meetings, forums, films, articles in newspapers and magazines, radio and TV coverage, and group discussions. One needs to understand the principles of good mental health, the problems of mental illness, such as alcoholism, narcotics addiction, juvenile problems, problems of the aging. A series of letters, "Milestones for Marriage" designed for high school students, is a project that could be sponsored by the Auxiliary through cooperation with the schools and the P.T.A.'s.

Legislation in Delaware pertaining to Mental Health should be under constant study and it is important that one's views and sympathies are known, concerning these matters. There is a tremendous need at present for schools for mentally retarded children who are living at home. It is unfair and humiliating that parents of these children should have to beg from door to door for funds to provide education for their afflicted children. Surely society has as great a moral obligation to these unfortunate children as it has to normal children and the public school systems should include provision for these children in special education. Public contributions are not the answer to this problem and adequate legislation is the only solution. It is our duty as enlightened citizens to urge appropriations for such schools. The needs of the institutions in Delaware, Stockley, Farnhurst, the Bacon Health Center, and the Welfare Home for the Aged, are endless and inexhaustible, and will continue to be as long as there are births in Delaware and it is the duty and privilege of Delawareans to provide for these needs through adequate legislation.

The Auxiliary has done a remarkable service in the provision of nursing scholarships. With the increased need of trained personnel in the care of the mentally ill the field of recruitment could well be broadened to include the field of mental health.

Each County Auxiliary throughout the country is being asked this year to make a survey on the needs of the psychotic child, and those with borderline illnesses; the facilities available and needed, the kinds of treatment, if any, and are asked to report the findings to the State Chairman. The Auxiliaries should make every effort to assist in any way possible to meet the needs of these people, either through material assistance, participation in educational and entertainment programs, or by enthusiastic support of legislation that will be beneficial to these groups.

Mental Health is a year-round project. Rather than a concentrated fan-fare of one week, I would urge each member to be constant in her study, support and understanding of Mental Health and its needs.

Lassell R. Comegys, *Chairman*
Committee on Mental Health
Woman's Auxiliary to the
Medical Society of Delaware.

## WILLIAM C. SILVERMAN, M.D.

1912-1957

Newark lost an active practitioner on February 4th in the death of Dr. Silverman. Born in Rochester, New York, he studied at the University of Rochester and received his M.D. from the University of Buffalo in 1937. He practiced in Rochester until he entered the military service. After the war he was in active practice in Newark until his death. He is survived by his wife, Dorothy Handloff Silverman, three children, his mother and two brothers.

## ARTHUR B. GRUVER, M.D.

1870-1957

Dr. Gruver graduated from the Medico-Chirurgical College of Philadelphia in 1898. He was licensed to practice medicine in Delaware in 1933 and joined the State Society in 1934. He was an active member of the Society and lived at 1801 Washington Street until last year when he moved to Compte, California. He died in Los Angeles on March 16th.

## WILLIAM M. GENTHNER, M.D.

1898-1957

Dr. Genthner, Medical Director of the Continental American Life Insurance Company, died on April 4th. He graduated from the State University of New York College of Medicine (Long Island) in 1928 and was a member of the Association of Life Insurance Medical Directors of America. He lived in Elam, Pennsylvania, and is survived by his wife, Mrs. Helen M. Genthner; a son, Philip Charles Genthner, and a grandson, William Graves Genthner.

## NOTICES

This schedule of meetings is published by the Committee on Education for two reasons: All physicians are cordially invited to attend any meeting. Secondly, it is hoped that publication of this list will help avoid the scheduling of conflicting meetings.

| | | |
|---|---|---|
| Delaware State Hospital | | |
| June 20, | 3:00 P.M. | Dr. Robert S. Bookhammer<br>“Methodology Research & Psychiatric Treatment” |
| Beebe Hospital | | |
| June 21, | 1:00 P.M. | Staff Meeting |
| Kent General Hospital | | |
| July 2, | 4:00 P.M. | Staff Meeting |
| Milford Memorial Hospital | | |
| July 9, | 4:30 P.M. | Staff Meeting |
| Nanticoke Memorial Hospital | | |
| July 11, | 4:30 P.M. | Staff Meeting |
| Memorial Hospital | | |
| September 3 | 8:30 P.M. | Staff Meeting |
| Delaware Hospital | | |
| September 10, | 8:30 P.M. | Staff Meeting |
| Wilmington General Hospital | | |
| September 24, | 9:00 P.M. | Staff Meeting |
| St. Francis Hospital | | |
| October 29, | 8:30 P.M. | Staff Meeting |

# The World Medical Association Needs You

Membership in the United States Committee of The World Medical Association offers every American physician the opportunity to play a direct, personal role in the world wide affairs of organized medicine.

In these times, when mutual understanding among the peoples of the world seems to be the only road to peace, when there is instantaneous communication and overnight travel between continents, medicine is recognized as a universal language that may help to mend the ills of the body politic, just as it is mending the ills of the individual.

The 5000 leaders of American medicine who now comprise the U. S. Committee of W.M.A. recognize the fact that it is just as important for them to be members of medicine's international society as it is to support their county, state and national medical organizations.

W.M.A. has formulated an International Code of Medical Ethics together with a modified Hippocratic Oath defining the ideals and obligations of physicians. W.M.A. has also set forth the basic principles that should protect the rights and status of doctors in all governmental social security or health insurance schemes. W.M.A. has done more than give lip service to these ideals, codes and principles. It is working day and night around the world to protect the profession wherever it is threatened by political interference or regulations that would prevent the doctor from serving his patients according to the dictates of his scientific knowledge and his own conscience. More recently, W.M.A. has been endeavoring to protect the rights of medicine and the medical profession against the attempts of various non-medical organizations to draft a code of international medical law.

American physicians are singularly fortunate in having met their most pressing domestic, social and economic problems by voluntary action, thus turning back the threat of political domination. Our favored position only emphasizes our responsibility for leadership in the fight to preserve the principles of good medical practice for our colleagues abroad, and to help them restore these principles wherever they have been compromised.

American physicians who have participated in W.M.A. affairs have been impressed with the fact that doctors the world over hold the same basic ideals and cherish the same hopes and aspirations for medicine. W.M.A. has provided a new sense of solidarity and strength by bringing physicians together for the solution of their common problems.

One of the many tangible benefits of membership in the U. S. Committee (or any of the national "supporting committees") is the privilege of attending the Annual Assemblies of The World Medical Association as an Official Observer. The 11th General Assembly will be held in Istanbul, Turkey, from September 29 to October 5, 1957. It is expected that a large number of U. S. Committee members will be present, many of them combining attendance at the Assembly with a tour of European centers of medical interest.

The W.M.A. Secretariat assists members of the U. S. Committee in making arrangements for their foreign travel, providing information on foreign medical meetings, introductions to medical leaders and teachers abroad, and promoting to the utmost the international friendships and contacts of physicians.

Membership in the U. S. Committee also brings you the "World Medical Journal", published every other month by W.M.A. This magazine, edited by Dr. Austin Smith, who is also Editor of J.A.M.A., is the only world-wide medium designed to keep you informed of medical progress and problems in all the 53 countries whose national medical associations comprise the membership of W.M.A.

W.M.A. is speaking for you and working for your interests in its contacts with other world organizations concerned with health or medical care, such as the World Health Organization (W.H.O.) of the United Nations, the International Labour Organization (I.L.O.), the International Social Security Association (I.S.S.A.) and the International Committee of the Red Cross. The contacts with these and other organizations assure you that your needs and principles will be represented and supported in negotiations that may be of vital concern to you.

Some of the other activities and accomplishments of W.M.A. of interest to every American physician are:

> Sponsorship of the First World Conference on Medical Education in London in 1953 and the second such conference to be held in Chicago in 1959;
>
> Promotion of international exchanges of medical students and teachers, lectures and clinical teaching by traveling teams of physicians;
>
> Development of an international program to improve occupational health services;
>
> Promotion of an ever freer flow of proven therapeutic agents throughout the world by urging removal of unwarranted trade restrictions and arbitrary licensing requirements in certain countries;
>
> Promotion of medical research, by promoting national pharmacopoeias and defending the rights of individuals discovering new drugs and agents to name them;
>
> Development of an international emblem (in conference with the International Committee of the Red Cross and the International Committee on Military Medicine and Pharmacy) for identification and protection of medical units and civilian physicians engaged in civil defense in war time; and promulgation of regulations stating the rights and duties of such physicians;
>
> Formulation of plans for a central repository of medical credentials, to enable qualified physicians of every country to file proof of their identity qualifications with a safe and authoritative international source.
>
> Conducting useful studies of many subjects of world-wide interest to physicians, such as post-graduate medical education, hospital facilities, cult practices, medical advertising, and effects of social security legislation on medical practice.

The World Medical Association will bring you solid benefits as well as the satisfaction of taking part in the international affairs of our profession. You can help its work to be more effective and useful to all of us by joining the U. S. Committee. The nominal dues of Active Membership in the U. S. Committee are only $10.00 each year. The Committee is seeking to double its present membership of 5000 American physicians this year. The objectives of W.M.A. are your objectives. It is your voice in world medical affairs. We invite you to add your name and your voice in guiding and strengthening this great organization.

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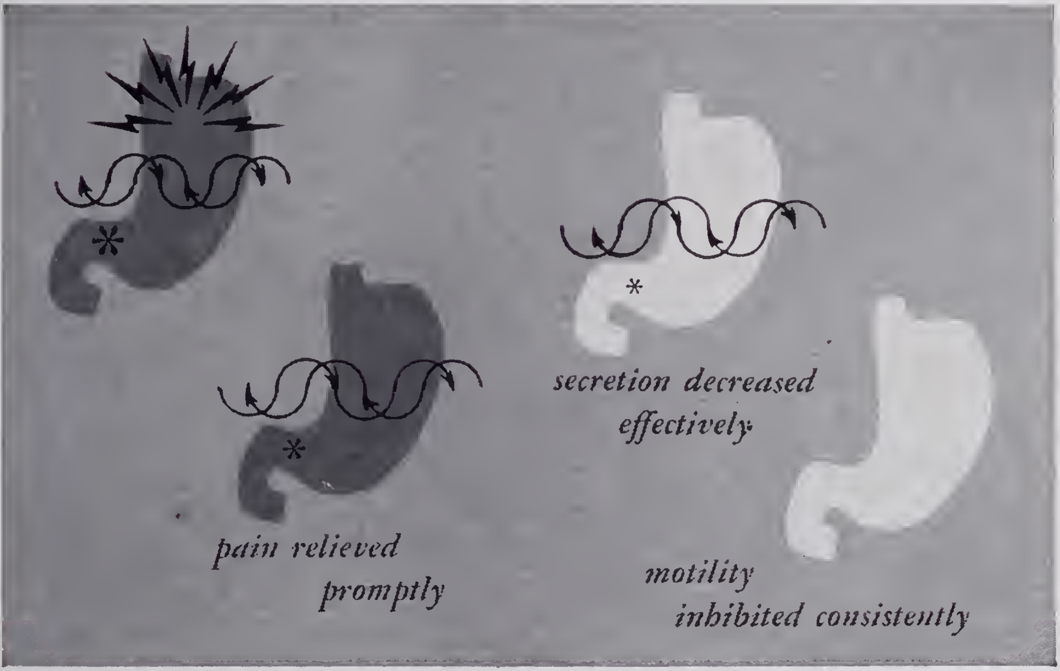
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*Lichstein, J.; Morehouse, M. G., and Osmon, K. L.: Pro-Banthīne in the Treatment of Peptic Ulcer. A Clinical Evaluation with Gastric Secretory, Motility and Gastroscopic Studies. Report of 60 cases, Am. J. M. Sc. *232:*156 (Aug.) 1956.

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That knowledge will be gained – and, indeed, the riddle of cancer itself, will one day be solved in the research laboratories. To continue to support this vital work, as well as to carry on its dynamic education and service programs, the American Cancer Society is seeking $30,000,000 this Spring. We are again appealing to the public to "fight cancer with a checkup and a check."

The check is insurance for tomorrow. The insurance for today is largely in your hands, doctor. Fighting cancer with a checkup is our *immediate* hope for saving lives.

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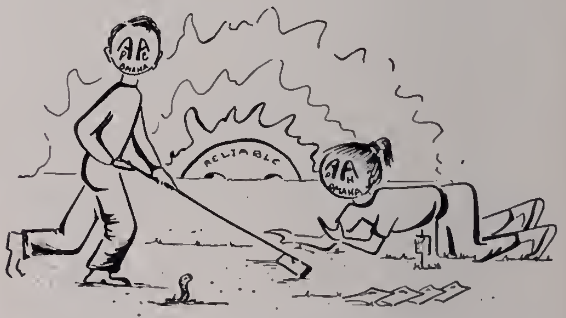

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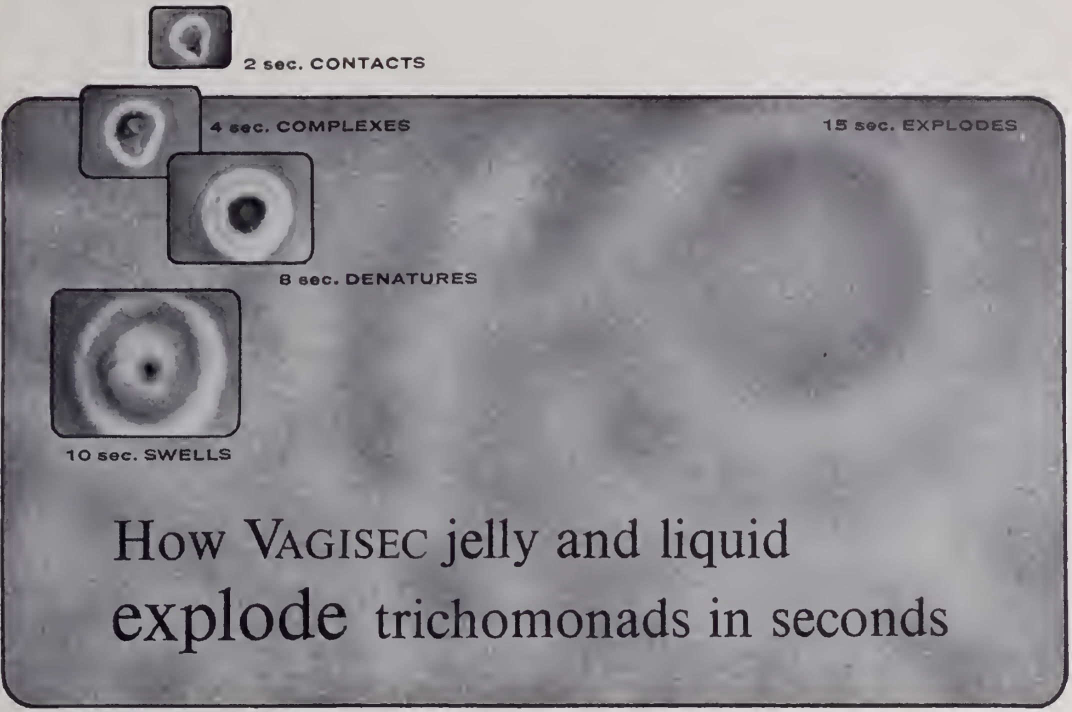

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*References:* **1.** Decker, A., and Decker, W. H.: Practical Office Gynecology, Philadelphia, F. A. Davis Company, 1956. **2.** McGoogan, L. S.: J. Michigan M. Soc. *55*:682 (June) 1956. **3.** Davis, C. H. (Ed.): Gynecology and Obstetrics (revision), Hagerstown, W. F. Prior, 1955, vol. 3, chap. 7, pp. 23-33. **4.** Davis, C. H.: West. J. Surg. *63*:53 (Feb.) 1955. **5.** Davis, C. H.: J.A.M.A. *157*:126 (Jan. 8) 1955. **6.** Molomut, N., Port Washington, N. Y.: Personal communication (Jan.) 1957. **7.** Draper, J. W.: Internat. Rec. Med. *168*:563 (Sept). 1955. **8.** Feo, L. G., et al.: J. Urol. *75*:711 (Apr.) 1956.

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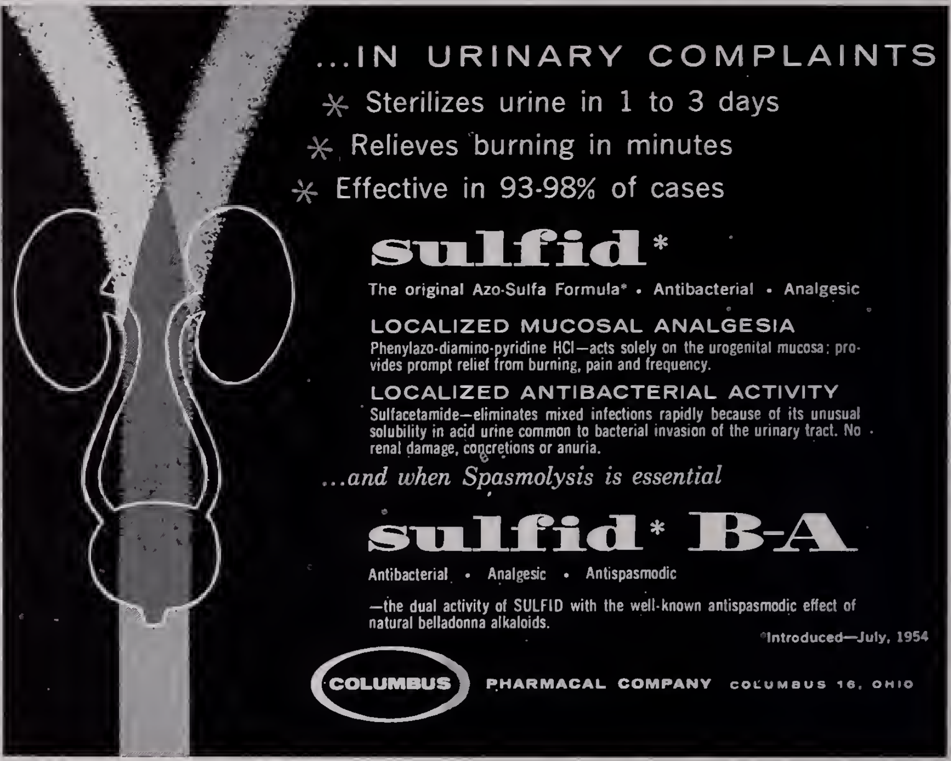

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(1) Holt, J. O. S., Jr.: Dallas Med. J. 42:497, 1956. (2) Gelvin, E. P.; McGavack, T. H., and Kenigsberg, S.: Am. J. Digest. Dis. 1:155, 1956. (3) Natenshon, A. L.: Am. Pract. & Digest Treat. 7:1456, 1956.

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2. Wright, W.T., Jr., et al.: J. Kansas M. Soc. *57*:410 (July) 1956.

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*Ferguson, J. T., and Linn, F. V. Z.: Antibiotic Med. & Clin. Therapy *3*:329, 1956.

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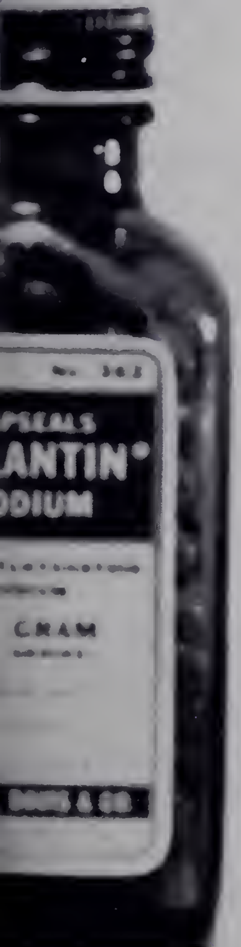

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1. Zimmerman, F. T., and Burgemeister, B.: *Arch. Neurol. & Psychiat.* 72:720, 1954.
2. Zimmerman, F. T., and Burgemeister, B.: *J.A.M.A.* 157:1194, 1955.
3. Zimmerman, F. T.: *Arch. Neurol. & Psychiat.* 76:65, 1956.

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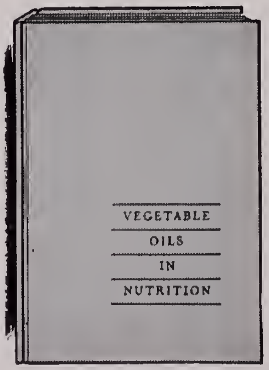

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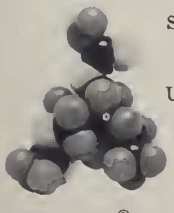

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# Relaxes without impairing mental or physical efficiency

*. . . well suited for prolonged therapy*

**1** "The primary finding of these studies is that meprobamate ['Miltown'] alone . . . produces no behavioral toxicity in our subjects as measured by our tests of driving, steadiness and vision."

*Marquis, D. G., Kelly, E. L., Miller, J. G., Gerard, R. W. and Rapoport, A.: Ann. New York Acad. Sc. 67:701, May 6, 1957.*

**2** "Since it [meprobamate–'Miltown'] does not cloud consciousness or lessen intellectual capacity, it can be used . . . even by those busily occupied in intellectual work."

*Keyes, B. L.: Pennsylvania M. J. 60:177, Feb. 1957.*

**3** ". . . the patient never describes himself as feeling detached or 'insulated' by the drug ['Miltown']. He remains completely in control of his faculties, both mental and physical . . ."

*Sokoloff, O. J.: A.M.A. Arch. Dermat. & Syph. 74:393, Oct. 1956.*

**4** "It ['Miltown'] . . . does not cloud the sensorium, and has a helpful somnifacient effect devoid of 'hangover'."

*Kessler, L. N. and Barnard, R. D.: M. Times 84:431, April 1956.*

**5** "In anxiety and tension states, meprobamate relaxes without dulling cortical function to the same extent as the commonly-used barbiturates."

*Rindskopf, W., Ravreby, M., Gutenkauf, C. and Sands, S. L.: J. Iowa M. Soc. 47:57, Feb. 1957.*

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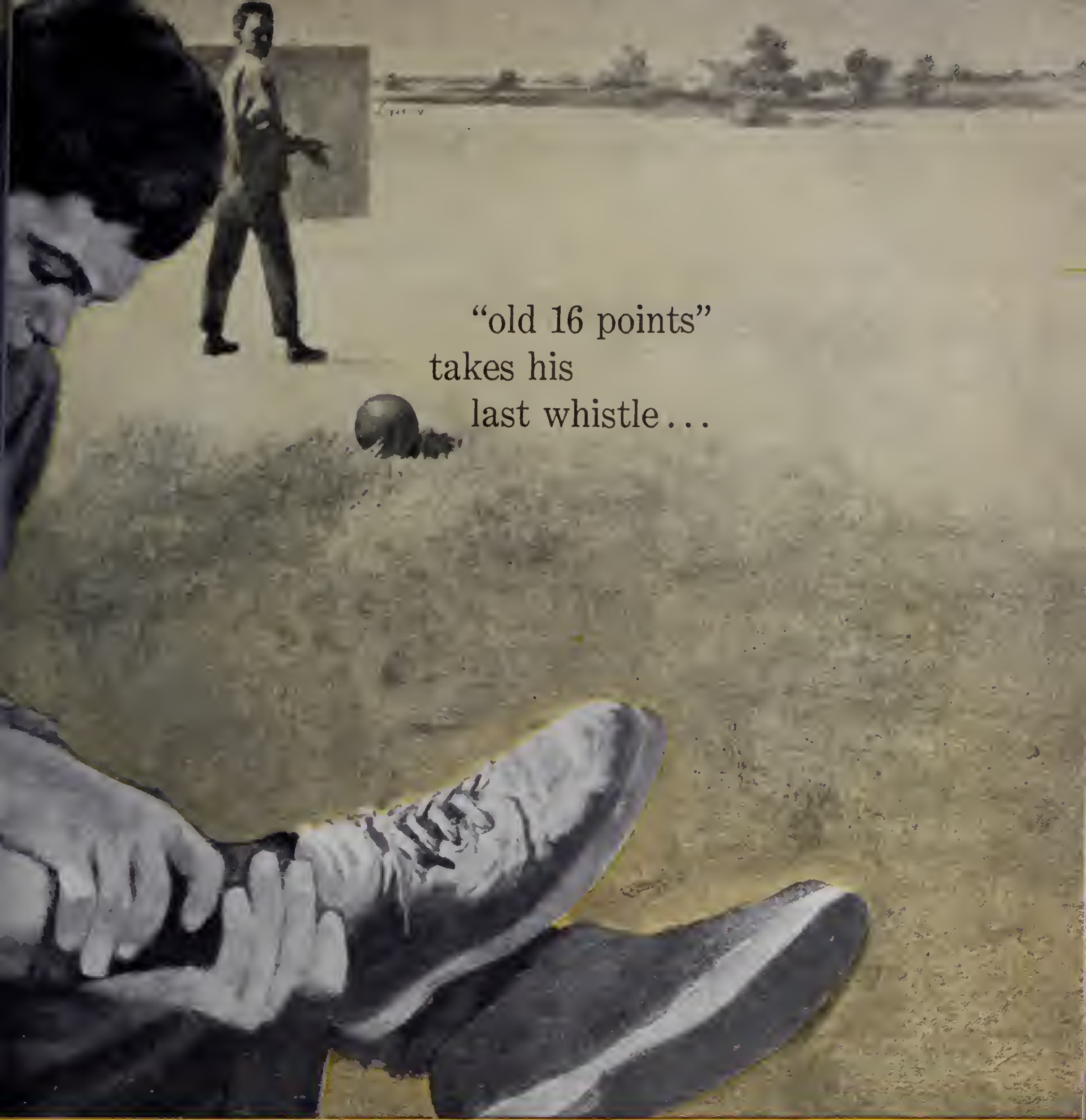

Therapy should be individualized. *Acute conditions:* 2 or 3 tablets 4 times daily. Following desired response, gradually reduce daily dosage and discontinue. *Subacute or chronic conditions:* Initially as above. After satisfactory control is obtained, gradually reduce the daily dosage to minimum effective maintenance level. For best results administer after meals and at bedtime.

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*for patients who go beyond their physical capacity...protective corticoid-salicylate therapy*

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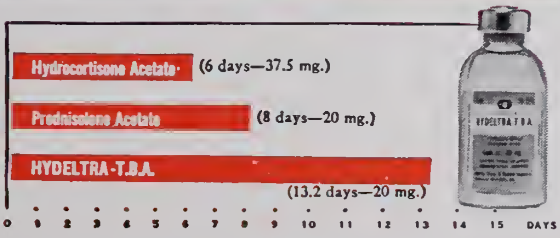

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**Supplied:** Suspension 'HYDELTRA'-T.B.A.—20 mg./cc. of prednisolone *tertiary*-butylacetate, in 5-cc. vials.

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now . . . the new **phosphate complex** of tetracycline

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the new **phosphate complex** of tetracycline

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a **single** antibacterial antibiotic

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a **well tolerated** antibiotic

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Bottles of 16 and 100.

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*they usually take about*
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**It's Percodan®—relieves pain**
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unique derivative of *Rauwolfia canescens*

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introduces a new degree of safety in major tranquilizing—antihypertensive therapy

Most significant: In extensive trials, Harmonyl has produced less mental and physical depression. And there are very few reports of the lethargy seen with many other rauwolfia preparations.

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**Safety—plus marked clinical effectiveness**

Harmonyl proved particularly effective, for example, in tranquilizing a group of 40 chronically ill, agitated senile patients.[1]

Of particular interest is the observation that patients became more lucid and alert on Harmonyl therapy. And there was a complete absence of side effects with Harmonyl—although a similar group on reserpine developed such side effects as anorexia, headache, bizarre dreams, shakes, nausea and vomiting.

Following another eight-month study of chronic, hospitalized mental patients, Ferguson[2] stated:

- Harmonyl benefited at least 15% more overactive patients and proved more potent in controlling aggression—requiring only one-half to two-thirds the dosage of reserpine.
- Patients experiencing side reactions on reserpine often were completely relieved when changed to Harmonyl.

Ferguson concluded: "*The most notable impressions were the absence of side effects and relatively rapid onset of action with Harmonyl.*"

Comparative studies have shown Harmonyl and reserpine about equal in hypotensive effect. The tranquilizing action of the two drugs also appeared similar—except that few cases of giddiness, vertigo, sense of detached existence or disturbed sleep were seen with Harmonyl.

***Professional literature*** is available upon request. Harmonyl is supplied in 0.1-mg., 0.25-mg., and 1-mg. tablets. Abbott

References: 1. Communication to Abbott Laboratories, 1956. 2. Ferguson, J. T.: Comparison of Reserpine and Harmonyl in Psychiatric Patients: A Preliminary Report, Journal Lancet, 76:389, December, 1956. *Trademark

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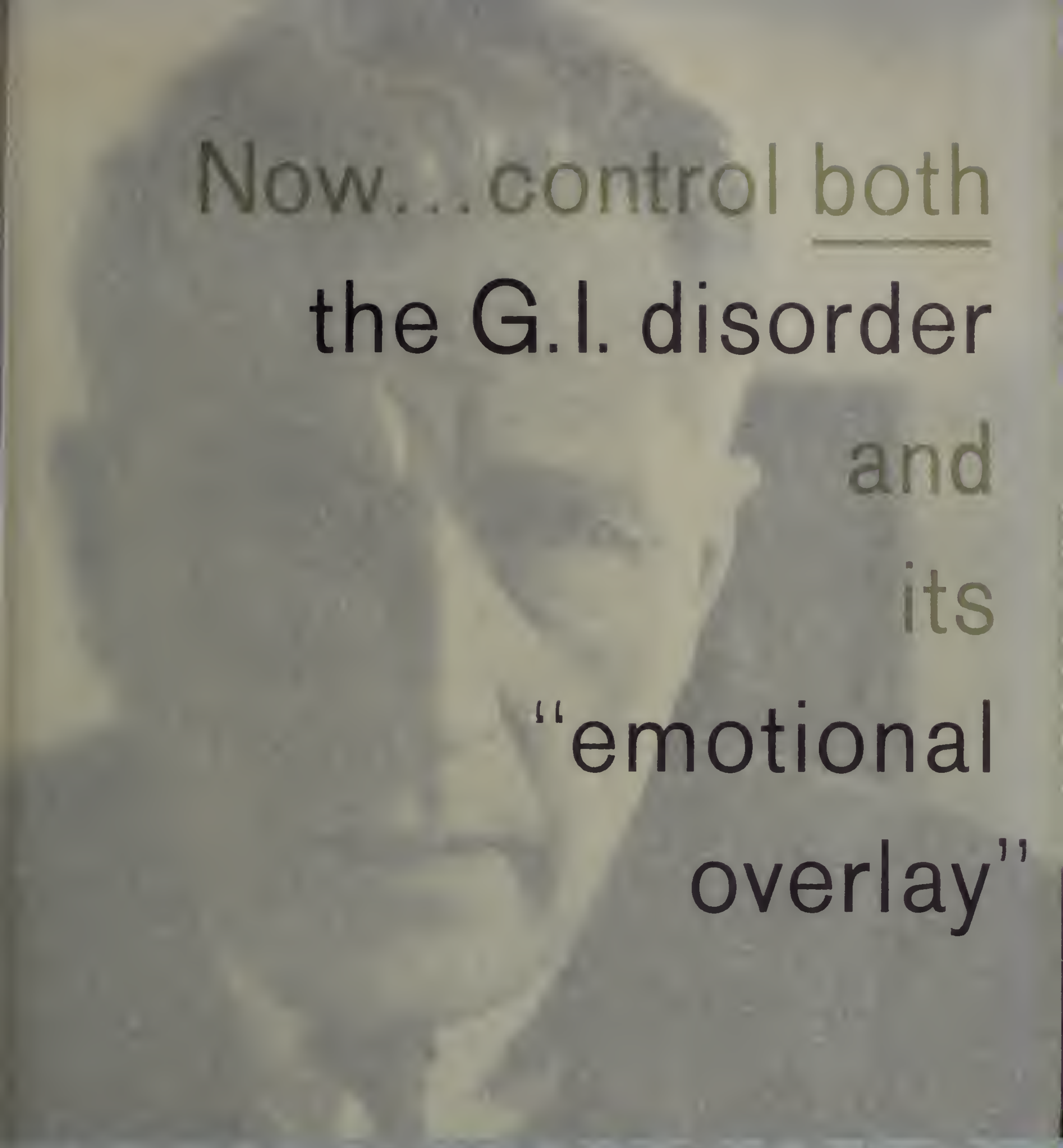

Now…control both the G.I. disorder and its "emotional overlay"

ANNOUNCING

# PATHIBAMATE

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unique derivative of *Rauwolfia canescens*

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Abbott

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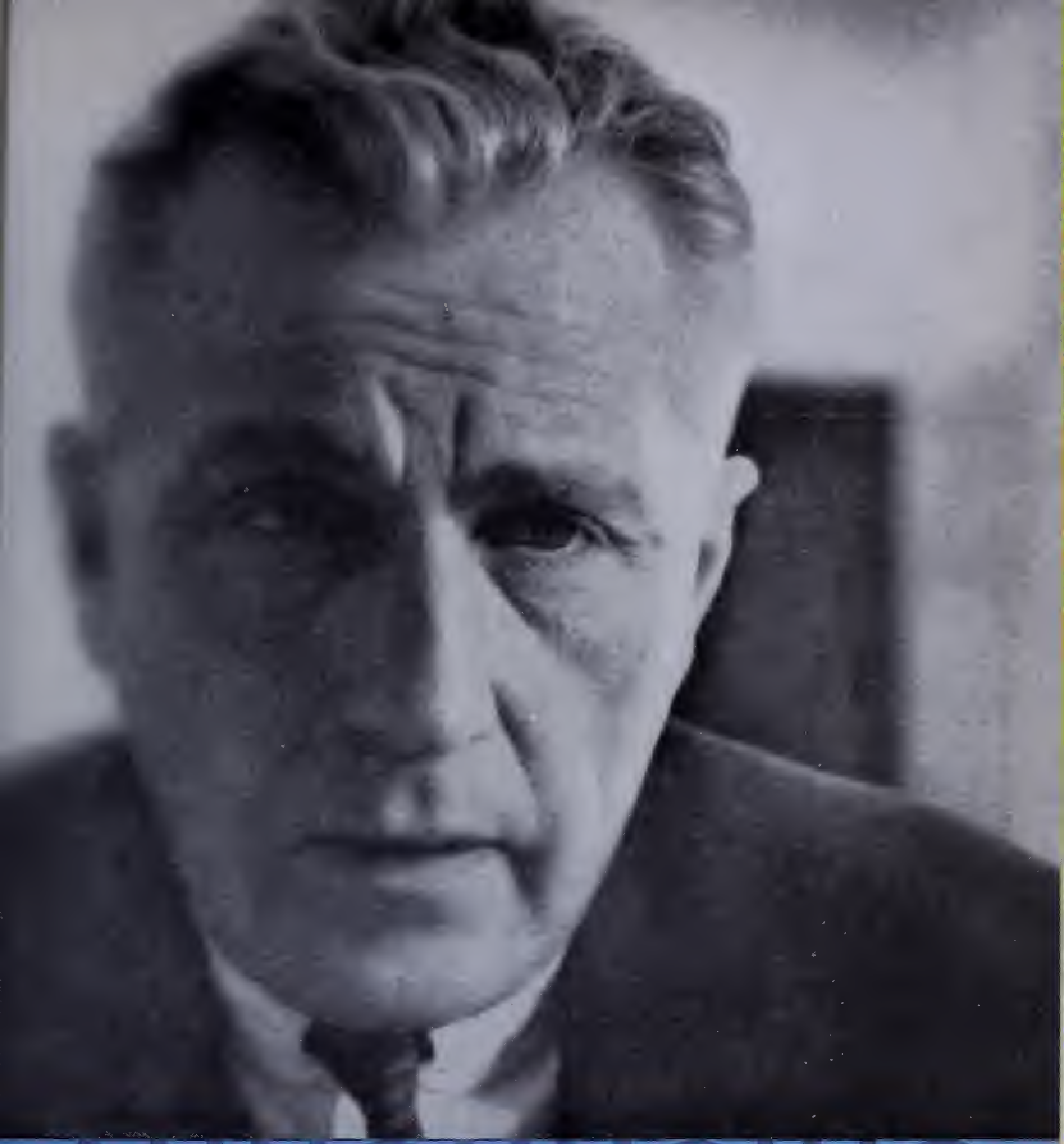

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An anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of G.I. tract disorders. In a comparative evaluation of currently employed anticholinergic drugs, PATHILON ranked high in clinical results, with few side effects, minimal complications, and few recurrences.[4]

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- "I find it easy to keep patients using the drug continuously and faithfully. I feel sure this is due to the desirable effect of the tranquilizing drug."[5]

- "The results in several people who were previously on belladonna-phenobarbital preparations are particularly interesting. Several people volunteered that they felt a great deal better on the present medication and noted less of the loginess associated with barbiturate administration."[6]

- PATHIBAMATE . . . "will favorably influence a majority of subjects suffering from various forms of gastrointestinal neurosis in which spasmodic manifestations and nervous tension are major clinical symptoms."[7]

- "In the patients with functional disturbances of the colon with a high emotional overlay, this has been to date a most effective drug."[5]

*eferences:* 1. Borrus, J. C.: *M. Clin. North America,*
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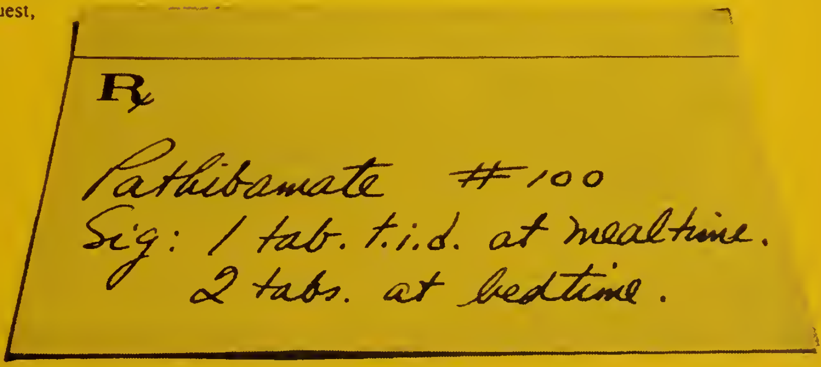

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DELAWARE STATE MEDICAL JOURNAL

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VOLUME 29 JUNE, 1957 NUMBER 6

# DIAGNOSIS AND MANAGEMENT OF OCULAR PROBLEMS

by
WILLIAM H. KRATKA, M.D.*

This article is intended to discuss most of the ocular problems that confront the general practitioner. Discussion has been kept to a minimum and the references have been selective rather than complete.

### OUTLINE

- I. Role of the Family Physician in the diagnosis and treatment of diseases of the eye.
- II. Vision
  - A—Visual examination of children
  - B—Industrial vision
- III. Strabismus
- IV. Glaucoma
- V. Ocular infections
  - A—Blepharitis
  - B—Conjunctivitis
  - C—Herpetic keratitis
- VI. Eye injuries and foreign bodies
  - A—Eyelid lacerations
  - B—Mechanical injuries
  - C—Lacerations and abrasions of cornea and conjunctiva
  - D—Foreign bodies
- VII. Chemical burns
- VIII. Diseases of the Retina:
  - A—Retrolental Fibroplasia
  - B—Retinopathy of Diabetes
  - C—Hypertensive Disease
  - D—Collagen Diseases
  - E—Retinal Vascular Occlusions
  - F—The Retina in Systemic Diseases
  - G—Blood Dyscrasias
  - H—Retinal Detachment
  - I—Tumors of the Retina
- IX. Neuro-Ophthalmology
  - A—Eye movement disturbances, Ocular Palsies
  - B—Supranuclear Lesions
  - C—Intranuclear Ophthalmoplegias
  - D—Intracranial Surgical Lesions affecting visual acuity
  - E—Lesions of the Cerebellar System
  - F—Pituitary Tumors
  - G—Meningiomas
  - H—Cerebrovascular disease
  - I—Multiple Sclerosis
- X. Visual Aids
  - A—Contact Lenses
  - B—Visual Aids for Subnormal Vision

## I. ROLE OF THE FAMILY PHYSICIAN

The family physician plays a vital role in the education of his patients in proper eye care and the prevention of blindness.

To assist the medical profession and the public with pertinent information about the care and treatment of the eye, this year has seen the establishment of the National Medical Foundation for Eye Care, Inc., organized by the nations' ophthalmologists.

At the March meeting of the American Academy of General Practice,[1] the National Society for the Prevention of Blindness in its exhibit demonstrated the following facts in cognizance of the importance of eye care:

---

*Associate in Opthamology, Wilmington General Hospital; Chief in Ophthalmology, St. Francis Hospital.

1. Over one third of a million Americans are totally blind.
2. Another million are blind in one eye.
3. Approximately 750,000 now enjoying sight will become blind, half of them needlessly.

Against these negative statements are reported the following gains:

1. Ophthalmia neonatorum has been cut by 98%.
2. Children's eye injuries have decreased by 37%.
3. Blindness from infectious diseases was cut 48% in children and 23% in adults.
4. A total of 8,000 American babies have been blinded by retrolental fibroplasia, now a preventable disease.

Today we face the following problems:

1. A longer life span is causing an increased prevalence of cataracts, responsible for one fifth of adult blindness; glaucoma is responsible for one eighth.
2. Over a million Americans above the age 40 have early signs of glaucoma.
3. Diabetes has become an important predisposing factor to blindness.

## II. VISION

Vision is a highly complex sense.[2] To produce a clear image in consciousness there takes place an integration of three systems, i.e. (1) the visual pathway; (2) eye movement and binocular balance; and (3) the higher centers. Impairment of vision may result from interruption of any of these systems. The retina acts as the receiver for light impulses entering the cornea. These become nerve impulses and continue through the optic nerve, optic chasm, optic tracts, optic radiations, and finally arrive in the visual cortex and higher centers. Thus the statement "we see with our brains, not with our eyes alone".

A—*Visual examination of children:* This requires some knowledge of visual development as well as skill and patience. Up to the age of five the following are considered normal in the stages of development of the pre-school child:

1. Full term newborn: has pupillary movements, darkness and lightness are comprehended.
2. First month: Baby will watch a bright light and within two foot range will follow an object through a 90° arc.
3. The 3rd and 4th months: Baby has fairly good development of convergence and the following of movements.
4. 9 months: Depth perception starts, the infant can play with tiny objects.

*Range of Visual Acuity:*

4 months—20/400
1 year—20/200
2 years—20/40
3 years—20/30 (picture chart)
4-5 years—20/30 (E chart)

*Testing of Vision during infancy:* Here we depend on the pupillary light reaction; and we note whether the child blinks at bright light and can follow bright moving objects. Acuity is first tested at 2-3 years of age: a 1½ in. marble may be used and if recognized at 20 feet vision is about 20/200; seeing ¾ in. wide marble at 20 feet means about 20/80 vision; at 3 to 4 years use is made of the animal kindergarten charts and at 4 to 6 years the Snellen E chart.

*School Vision Screening:* Vision screening of school children has been conducted by many screening methods.[3] The simpler and more efficient the device, the more accurate have been the results. The Massachusetts Vision Test (MVT) has failed to prove more trustworthy than the fundamental Snellen test. The subsidiary tests of the M.V.T. i.e., the plus 1.50 to 2.00 diopter sphere and the Maddox rod-prism measurement produce an additional small group of cases which merit care but do so with a high rate of over-referrals. By the Snellen test, failure to read 20/30 with either eye is used as the standard of referral. This simple and efficient method discloses from two-thirds to three-fourths of all cases professionally meriting care.

General observation by the examiners for gross signs of pathology (ptosis, strabismus, etc.); signs of stress on visual performance (squinting, peering, head tilt, etc.); and symptoms or complaints referrable to vision (pain, blurring, double vision) should be noted to supplement the Snellen test.

B. *Industrial Vision:* Here again we find best results being obtained by testing at 20 feet with the Snellen chart and at 13 inches with the Jaeger test type. Complicated methods such as telebinoculars and ortho-rators, while assisting in screening for vision, depth perception, and ocular motility fail to attain the accuracy of the simpler tests. These methods also require accurate performance and well trained technicians. Proper lighting for plant work should be carefully evaluated in regard to the type of work required and should not be over illuminated, particularly by fluorescent lights alone. Glare and light reflections will frequently cut down industrial and office efficiency as well as initiate many symptoms of ocular fatigue.

## III. STRABISMUS

Six extra-ocular muscles move each eye, (seven counting the eyelid). In each eye these muscles are controlled directly by the third, fourth and sixth cranial motor nerves and by complicated associated nerve tracts in the brain areas. Visual function can be upset by a disturbance of a single muscle or of the motor nerve supplying it. Any defect in binocular balance and vision results in blurring, headaches or, if more pronounced, double vision.[2]

When the tendency of an eye to deviate (phoria) becomes intolerable, binocularity is lost, and the result is outright strabismus or squint. Unfortunately, most non-paralytic squints begin between ages one and four, before school age. Our aim in treatment should be to diagnose and treat these problems as soon as possible. Besides the cosmetic defect plus the loss of binocular and stereoscopic vision, there are more severe disabilities from strabismus including amblyopia ex-anopsia due to visual suppression in the squinting eye plus emotional disturbances and behavior problems. In no instance should the parents be allowed to think the child will outgrow the strabismus.

*Evaluation of strabismus requires:* (1) Determination of visual acuity particularly noting inequality of the two eyes as a possibility of suppression amblyopia. (2) A measurement of the degree of squint made either by the Hirschberg method in noting the deviation of the light reflexes from the center of squinting eye or by more refined techniques with prisms or an orthoptic examination. (3) The child's eyes are refracted under cycloplegia and glasses are prescribed where indicated.

*Treatment of strabismus* consists of refraction, surgery (where indicated), and in many cases, orthoptic treatment. Orthoptics alone does not straighten eyes. Its purpose is diagnostic as well as the reeducation of the eyes in the lost art of binocularity. Defective vision in the squinting eye requires patching of the good eye until vision in both eyes is approximately equal; occasionally drops and partial occlusion may be used for this purpose. This is most effective in late infancy and early childhood. Let me once again emphasize that early treatment of strabismus gives the best results. Where possible major correction should be made before school age both to prevent emotional upsets as well as to best assist the development of the fusion mechansm.

## IV. GLAUCOMA

Blindness has been known throughout the ages. Hippocrates in his "Aphorisms" mentioned a disorder known as "glaucosis" marked by a greenish-or-bluish-gray pupil, as a cause of blindness. Galen noted glaucoma to be the most common cause of blindness. Glaucoma may be defined as an abnormal elevation of intraocular pressure which is incompatible with normal function of the eye. Vision is lost permanently because of the pressure on the nerve fibers entering the optic disk. Normally, intra-ocular tension ranges between 18 to 25 mm. of mercury with Schiötz tonometer. Mass tonometric screening reveals that 2% of our population over 40 years of age have undetected glaucoma.[4] Any patient within this age group complaining of blurred vision, ocular pains, or halos about lights at night should be suspected of having this debilitating disease. Routine tonometry should be a part of all medical examinations over the age of 40. Tonometry by simplified methods must be taught and emphasized to medical students and internes. Only with the aid of early tonometry and rapid visual field testing can this surreptitious disease process be prevented from becoming a serious menace to our increasing and aging population.

*Types of Glaucoma:* Glaucoma is divided into (a) primary types, i.e. narrow angle and open angle, (b) secondary type, i.e. principally inflammatory, traumatic and cataractous, and (c) congenital form (Buphthalmis).

In the treatment of glaucoma the ophthalmologist must differentiate between the acute congestive, narrow-angled form of glaucoma characterized by bouts of severe pain plus a rapid rise in pressure; in contrast to the simple, wide or open angle type in which ocular hypertension develops insidiously over the years. It is principally in the simple variety with consistently elevated tension that we find progressive cupping of the optic disk and loss of visual fields.[4]

*Therapy of glaucoma* includes frequent visual evaluation, tonometric and tonographic tension studies, visual field examinations, and gonioscopic examinations of the anterior chamber angle.[5] Where possible the control of tension as well as the maintenance of the visual fields is attempted by means of miotics such as Pilocarpine, Doryl, and D.F.P. (Floropryl) as well as Diamox. In contrast to the chronic form, acute narrow angle glaucoma, if operated upon early, usually can be cured by an iridectomy, which will repair the block of the chamber angle. In the chronic forms, surgery is indicated only when medical therapy is unsuccessful in maintaining normal ocular tension, vision, and visual field.

## V. OCULAR INFECTIONS

A—*Blepharitis:* (or infections of the lids) Blepharitis represents one of the commonest forms of ocular pathology. Ophthalmologically we separate these infections into two types:[6]

1. *Eczematous Blepharitis,* contact dermatitis (allergic): Treatment and diagnosis in these cases is aimed at searching for and eliminating the possible allergens. These may consist of topically applied drugs, cosmetics, pollens, dust and chemicals. Blepharitis varies in severity from the acute edematous and ulcerative form to the chronic dry parchment-like phase. Besides elimination of the offending agent, local cortisone, antihistamines, plus systemic ACTH and cortisone is the present treatment of choice. In some of the more stubborn cases a series of intracutaneous tests are done as part of the investigation.
2. *Chronic Blepharitis:* Here we find variation in type and appearance; from the greasy, dandruff like scaly seborrheic form; to the more irritative, ulcerative and pustular variety. Etiologically we find the Pityrosporon ovale organism causing the seborrheic type; whereas in the ulcerative lesions we mostly find the hemolytic staphylococci.

*Therapy* consists of local antibiotic applications to the cilia and lid margin.[7] Thygeson recommends selenium sulfide ointment for the seborrheic form, although this may be found very irritating if contact occurs with the eye. In resistant cases, especially when accompanied by scalp infections, treatment of the seborrhea will require salicylic and mercurial ointments.

In ulcerative blepharitis, besides local antibiotic and sulfonamide therapy, desensitization and immunization with staphylococcus toxoid and vaccine should be considered. The use of hot compresses of hot water or boric acid solution should not be neglected to reduce the acute irritation of the lid margins.

B—*Conjunctivitis:* Viruses: By far the most significant conjunctival literature during the past year is that concerning the so-called APC or adenoidal-pharyngeal-conjunctival group of viruses (adenoviruses). Serologically these have been subdivided by specific neutralization tests into serologic types. Conjunctival irritation may vary from a follicular form to the fulminating epidemic kerato-conjunctivitis type. Many of these cases have proved secondary to swimming pool exposure and are now termed pharyngoconjunctival fever. Whereas antibiotics and sulfonamides have no therapeutic value here, steroids, locally, lead to the relief of symptoms.

*Baterial conjunctivitis:* In resistant cases it is important to discover the etiologic factor and determine the sensitivity of the organism to antibiotic therapy and sulfonamides. As in all fields of medicine, new agents are constantly being tried. Many staphylococci are proving very resistant to tetracycline therapy.

C—*Herpetic Keratitis* (Dendritic ulceration): Caution in the treatment of these virus ulcerations of the cornea should be exercised. Dendritic ulcerations are non-responsive to cortisone therapy and may end in perforation of the globe. Cortisone suppresses the inflammatory reaction causing a false sense of security. Tissue culture may establish a positive diagnosis as early as 6 to 8 hours after innoculation. These cases are best treated by an ophthalmologist and early cauterization is the best form of therapy.

## VI. EYE INJURIES AND FOREIGN BODIES

A—*Eyelid lacerations:* To obtain good results, eyelid injuries must be repaired within 24 to 36 hours. Horizontal lacerations of the skin not involving the lid margin can usually be sutured directly by the general practitioner. Suturing is best done with atraumatic needles and black silk (000000). Vertical lacerations require accurate repair (to avoid notch formation at the lid margin) of the tarsus and orbicularis, and are best done by a specialist.[8]

B—*Mechanical Injuries:* Contusions and concussions of the globe are a deceptive group of injuries. Trauma may be so slight as to require no treatment, or may result in perforation of the globe, retinal separation, intraocular hemorrhage, glaucoma, cataract, and sympathetic ophthalmia. Whenever possible, it is always wise to check the patient's vision and examine the interior of the globe with the ophthalmoscope at the time of the accident. These cases should always be carefully examined, usually by x-ray, for possible intraocular foreign body.

C—*Lacerations and abrasions of cornea and conjunctiva:* Small lacerations (up to 2-3 mm.) of the conjunctiva frequently heal without repair. Corneal lacerations require suturing. Treatment of lacerations should include: (1) a careful search for a possible foreign body; (2) installation of an antibiotic; and (3) a pressure patch.

D—*Foreign Bodies:* Most foreign bodies lodging in the eye are contaminated with bacteria and antibiotics should be given as part of the treatment. Detection of a foreign body of the cornea requires good illumination, a binocular loupe, and frequently fluorescein staining. Superficial foreign bodies of the cornea may be readily removed with a sterile eye spud. Deeply imbedded particles and rust rings are best removed by a trained specialist with the help of a slit lamp. Relief from subsequent pain following removal of the foreign body is best achieved by means of ½% Pontocaine or Butyn eye ointment, plus a tightly applied sterile eye patch, to prevent lid irritation.

## VII. CHEMICAL BURNS OF THE EYE

First aid for any chemical injury to the eye should consist of immediate and copious flushing with plain water or normal saline. Always flush under the lids to be sure of removal of all particles. Local anesthetic, as ½% Pontocaine, should be instilled to relieve the severe blepharospasm. Fluorescein should be used to stain the cornea and conjunctiva to determine areas damaged. To relieve the marked photophobia and frequent iritis from chemicals, dark glasses and either homatropine (for mild exposures) or atropine (for severe cases) can be used daily until the marked irritation subsides. Cortisone locally is very helpful in relieving the inflammatory reaction but must be used cautiously at onset so as not to retard the regrowth of the corneal epithelium. Most severe burns of the cornea are frequently complicated by iritis and should be followed carefully with slit-lamp observation. Deeply penetrating chemical burns must be followed closely until all activity ceases. At this time evaluation of vision, corneal scarring, and invasion of vessels should be made. The specialist can then determine the value of beta-radiation to reduce corneal vascularization and the possibility and need of restoring vision by means of superficial keratectomy or a penetrating corneal transplant.

## VIII. DISEASES OF THE RETINA

Ophthalmoscopic examination is just as important in the diagnosis and treatment of systemic diseases as it is for ocular diseases. If adequate examination cannot be made through a normal size pupil and glaucoma is not suspected, the pupil may safely be dilated by Paradrine 1%, Neo-synephrine 2½%-10% or Cyclogel ½% or 1%.

A—*Retrolental Fibroplasia:* In 1952, oxygen administration to premature infants was implicated as an etiologic agent in the development of retrolental fibroplasia (RLF). The following conclusions were reached by 1956 regarding the major factors affecting this dibilitating disease[9]:

1. The incidence of active stages of RLF in infants receiving routine oxygen was twice that found in those with curtailed oxygen.
2. Both active and cicatricial forms of RLF was less in infants of single birth than those of multiple birth.
3. Increased duration of oxygen exposure rapidly increased the incidence of both active and cicatricial changes.
4. All infants showed an inverse ratio relationship of cicatricial RLF to their birth weight. (Smaller birth weight—greater changes).
5. There is no concentration of oxygen in excess of that which is in air that is not associated with the risk of developing RLF.

*Clinical Stages of RLF*

1. Vascular stage: Characterized by dilation and tortuosity of the retinal vessels, with areas of neovascularization peripherally.
2. Hemorrhages and transudates stage: These appear around the abnormal vessels.
3. Vascular proliferation stage: Extension into the vitreous.
4. Retinal detachment.

It has been generally recommended that oxygen concentration in the case of premature infants should not exceed 40%, and then only for as brief periods as possible.

B—*Retinopathy of Diabetes Mellitus:* Retinal changes present the most serious problem confronting the ophthalmologist as far as the diabetic patient is concerned. Diabetic retinopathy is considered to be a specific clinical entity more closely related to the duration than to the severity of this metabolic disturbance. There appears to be a close relationship between the development of severe retinal lesions and renal involvment, reduction of renal function, intercapillary glomerulosclerosis, and secondary hyperfunction.[10]

Characteristic diabetic changes are usually bilateral and are found chiefly between the upper and lower temporal vessels and in the area about the optic nerve. The disk is always normal in appearance. The veins frequently are distended. Small round micro-aneurysms and punctate hemorrhages are noted along the course of the superior and inferior temporal veins. Visual disturbances depend on the degree of involvement of the macular area.

The most important part of the treatment and prevention of diabetic retinopathy lies in the degree of control of the diabetes itself. Joslin has shown that strict regulation of diabetes (blood sugar kept below 125 mgm per 100cc) lowers the incidence and severity of diabetic retinopathy. The value of medications such as rutin, ascorbic acid, hesperiden, vitamin B complex, and testosterone is highly questionable. Recently, vitamin B-12 deficiency has been found to be associated with excessive adrenal cortical function in diabetics.

C—*Hypertensive Disease:* In hypertensive retinopathy, one should attempt to differentiate the following significant fundus findings:

1. Angiospasm vs. permanent sclerotic changes (of particular importance in the toxemia of pregnancy).
2. Vascular changes of the senile nonprogressive vs. the progressive type.
3. Evidence of retinopathy; i.e. hemorrhages or exudates.
4. Evidence of malignant hypertension suggested by cotton-wool exudates, star-shaped figure of the macula, and papilledema.

Keith-Wagener's classification of hypertension is still the best working basis for determination of the degree of clinical activity:

Grade I—Local or generalized arteriolar attenuation.

Grade II—Advancing attenuation (the copper-wire reflex changing to the fine silver-wire appearance).

Grade III—Retinopathy (hemorrhages and exudates), silver-wire arterioles.

Grade IV—Papilledema, star-shaped figure, and cotton-wool exudates.

Long-continued hypertension and renal insufficiency are viciously inter-related.[11] Hypertensive fundi appearing with advanced arteriolar disease have an adverse prognostic significance. Here we may be entering the malignant phase of long standing essential hypertension or the end stages of a chronic glonerulonephritis.

D—*Ocular Manifestation of Collagen Diseases:* Klemperer, in 1942, first used this term to stress the importance of "systemic diseases of the connective tissue". In the ensuing years, the concept of a hypersensitivity response has been assumed.[12]

The systemic diseases most frequently included are:

1. Lupus erythematosus disseminatus
2. Periarteritis nodosa
3. Dermatomyositis
4. Generalized sclerodema
5. Serum sickness
6. Rheumatic fever
7. Rheumatoid arthritis.

*Specific Ocular Changes:* In lupus erythematosus disseminatus, periarteritis nodosa, dermatomyositis, and serum sickness we find the following early fundal changes at the posterior pole: (1) flame-shaped hemorrhages, (2) cotton-wool exudates, and (3) occasionally slight papilledema. These changes do not occur in rheumatic fever or rheumatoid arthritis. However, here we may find severe episcleritis, nodular scleritis and iridocyclitis. A nongranulomatous iritis, retinal perivasculitis, and occlusion of the central retinal artery have been found in periarteritis nodosa. The cardinal factor in pathogenesis appear to be damage to the capillary endothelium.

*Therapy:* Nonspecific therapy (i.e. the steroids: hydrocortisone, cortisone, prednisone, and prednisolone) has received the most attention in attempting to prevent the development of fibrinoid reactions or inducing their reversal after occurence.[13] Specific forms of therapy such as anticoagulants, gold therapy and nonspecific measures are being tried in treating the individual diseases.[14]

E—*Retinal Vascular Occlusions:* Anticoagulant therapy, vasodilators, and stellate-ganglion block are chief forms of therapy most commonly used in arterial and venous occlusions. Arterial occlusions frequently are accompanied by an element of spasm, and respond best when treated within the first 24 hours. In general, better results are obtained in the venous occlusions even where treatment has been started within the first few weeks following the advent of the occlusion. Anti-coagulants have proved most helpful in the venous occlusions where prothrombin levels may frequently be found above normal.[10]

F—*The Retina in Systemic Diseases:*

1. *Toxoplasmosis:* This disease has become an increasingly important cause of uveitis and chorio-retinitis. It appears both in congenital and adult forms. Diagnosis depends on a positive Sabin-dye-test titer, complement-fixation, and skin tests. Daraprim and the sulfonamides are the latest accepted forms of therapy.
2. *Tuberculosis of the Retina:* Isoniazid,[15] streptomycin, and aminosalicylic acid in combination is the best therapy for ocular tuberculosis. Sustained chemotherapy is necessary. Periphlebitis and vitreous hemorrhages are complications of fundal involvement.

G—*Blood Dyscrasias:* Hematologic diseases produce characteristic fundus changes: i.e. change in the fundus color and vascular caliber, hemorrhages and exudates, and, at times, edema of the optic disks. Evidence of these changes points to a blood dyscrasia.[16]

1. *Anemia:* Retinal hemorrhages usually appear when hemoglobin concentration drops to 35% or 5 Gm. per 100cc of blood. These hemorrhages are most likely secondary to increased capillary permeability.
2. *Polycythemia:* Cyanosis retinae, darkening of the retina, may result from primary or secondary polycythemia. Changes generally appear when the red cell count reaches 8,000,000 or the hemoglobin concentration reaches 115%. Hemorrhages are uncommon, but vascular dilitation may be found, especially in the veins. If papilledema occurs, the possibility of a tumor of the posterior fossa should be kept in mind.
3. *Leukemia:* Retinal hemorrhages often occur in all types of leukemia. They are more frequent in acute cases and in myelogenous leukemia than in lymphatic leukemia. The white-centered hemorrhage is the characteristic lesion. This probably results from leukocytic conglomerations surrounded by blood. Papilledema may occur and is more often associated with leukemia than with other blood dyscrasias.
4. *Thrombocytopenia:* Purpuric hemorrhages occur in the eye in essential and secondary thrombocytopenia. Small white exudates, probably ischemic infarcts of the retina are found in thrombotic thrombocytopenic purpura.

H—*Retinal Detachment:* The patient with a retinal detachment usually complains of a curtain-like loss of vision. Ophthalmoscopic examination reveals a retinal detachment corresponding to the area of the visual field loss. The patient may give a history of a minor blow to the eye or head but many retinal detachments are idiopathic or related to advancing myopia.

*Diagnosis:* This requires (1) thorough ophthalmoscopic examination with a widely dilated pupil, (2) transillumination thru the lids or sclera and noting of the red reflex through the pupil, (3) vision and visual field examination to corroborate the loss of vision and the scotomatous areas which should correspond to the detachment.[17]

*Treatment:* This requires early bed rest and surgery. Prognostically, Okamura and Schepens state that in cases of a retinal break with a minimum detachment, the probability of cure by operation is as high as 95%. If the detachment is allowed to progress, this figure will drop to 50% or 60%, owing to the formation of fixed folds in the retina plus vitreous retraction. Early cases with minimum detachment are chiefly treated by diathermic surgery. The more advanced cases are now treated by scleral buckling whereby the choroid is folded inward and brought into contact with the detached retina. Schaffer has recently introduced the idea of vitreous implantation, whereby the detached retina is pushed back against the choroid and diathermy alone or with scleral buckling is also performed.

I—*Tumors of the Retina:* So-called "gliomas" or neuroepitheleomas of the retina are usually detected before the age of four.[18] In this condition the mother usually brings the child because she has noted: (1) a white "cat's eye" pupil, (2) evidence of poor vision, or (3) squint. Family history may reveal a strong hereditary tendency. Examination reveals a whitish retinal detachment which may fill the entire posterior segment to the back of the lens. At least 25% occur bilaterally. Diagnosis may be aided by P-32 radio-active studies.

*Treatment:* Most ophthalmologists feel that this malignant growth is best removed by early enucleation of the involved eye. If the second eye is involved, irradiation of the tumor and preservation of some vision can be attempted, but one is confronted with the possibility of metastasis and intracranial extension.

## IX. NEURO-OPHTHALMOLOGY

The close relationship of the eye to the brain predisposes it to certain diseases of the nervous system. Prompt diagnosis is of utmost importance if blindness is to be prevented in those diseases for which there is effective treatment. Among the important ocular manifestations of neurologic diseases are: (1) ptosis; (2) lagophthalmos (inability to close the eye); (3) abnormal extraocular mitility; (4) loss of corneal sensitivity; (5) pupillary changes as to size and reactivity; (6) visual loss due to central scotoma; (7) papilledema and atrophy of the optic nerve; (8) and contractions or scotomas in the visual fields.[19]

Today, the ophthalmologist must be alert to the possibility of disorders of the nervous system that may damage vision, in order that the patient may be referred to the neurosurgeon early so that a cure may be affected.

A—*Eye Movement Disturbances and Palsies:* The nerves to the eye muscles take a long and vulnerable course along the base of the skull and orbit. Roentgenologic examination should include views of the skull, special views of the orbits, paranasal sinuses, petrous bones and base of the skull. Also, where indicated, roentgenologic contrast methods (i.e., angiography and pneumography) are used.[20]

*Ocular Palsies:* Gross lesions causing paralysis of the extraocular muscles are usually located in the region of the third, fourth, and sixth cranial nerves in the cranial cavity and only rarely in the orbit.[21]

1. *Third Nerve:* Paralysis of the third nerve required surgical correction; and is most commonly caused by intracarotid aneurysm. Typical signs are ptosis, diplopia, and third nerve palsy.
2. *Fourth Nerve:* Trochlear paralysis affects the superior oblique muscle, the depressor of the globe. Head trauma and vascular diseases are the most common disturbances; tumors and aneurysms are rare.
3. *Sixth Nerve:* Paralysis of the abducens is the most common of all extraocular palsies. Due to its long intracranial course it is vulnerable to mechanical compression, adjacent inflammatory, or vascular disease. Sixth nerve involvement is common with brain tumors, but is of little localizing value per. se.[22]

B—*Supranuclear Lesions:* Lesions here are characterized by an inability to perform conjugate eye movements in one direction, either in horizontal or vertical planes. Diplopia is absent because the deviation is equal in both eyes.

C—*Intranuclear Ophthalmoplegias:* This occurs when there is a lesion of the medial longetudinal fasciculus. The characteristic feature of this condition is paresis of one medial rectus; or more frequently, both, on attempted lateral gaze. Convergence is usually intact, particularly in the more common posterior internuclear ophthalmoplegia. It may be diminished or absent in anterior internuclear ophthalmoplegia; that is, the midbrain portion.

D—*Intracranial Surgical Lesions Affecting Visual Acuity:* These are gross space-occupying lesions inside the cranial cavity closely surrounding the optic nerves and chiasm or, less often, encroaching on the visual tracts or the occipital visual centers. Practically all of these lesions are benign and can be removed safely and successfully when symptoms first arise.

Diagnostic features are: (1) slowly diminishing vision, (2) progressive visual field cuts, (3) optic atrophy, and (4) choked disks. Although plain x-rays of the skull may be normal, intracranial air injection and arteriographic studies usually will reveal the true nature of the eye disorder. The commonest causes are: (1) aneurysms, (2) hypophyseal adenomas, (3) Rathke tumors, (4) meningiomas, and (5) osteomas.[23]

E—*Lesions of the Cerebellar System:* The cerebellum serves as a coordinator and modulator of extraocular innervation. In extensive cerebellar disease, eye movement disturbances occur that are analagous to those of the extremities, i.e. asynergia, ataxia, and dysdiadokokinesis of eye movements. Here we find disassociation of conjugate movements of both eyes.

F—*Pituitary Tumors:* These are one of the most frequent neurologic conditions producing loss of vision. Dimness of vision in one eye is soon followed by difficulty with the other eye. Reduced visual acuity is not corrected by glasses and this calls for an immediate plotting of the visual fields. This alone may determine evidence of a pituitary tumor. Pallor of the optic nerve head from pressure plus enlargement of the pituitary fossa may also be found if the disease is discovered at a later stage.

G—*Meningiomas:* This large group of tumors are only malignant in their pressure effects on adjacent structures. Due to their proximity to the optic nerve, usually one eye is affected at first. Loss of vision is slow and painless. Field loss is not as diagnostic as in pituitary tumors but x-rays aid in the diagnosis in 50% of the patients.

H—*Cerebrovascular Disease:* The usual "stroke", when it affects vision, blacks out a half of the patient's visual field, a homonymous hemianopsia. If a vascular accident involves a basilar artery which supplies the occipital lobes of the brain and the visual centers, the patient may be completely or nearly blind. Transient blacking out of vision sometimes occurs in some patients and should be treated as a forewarning of impending disaster.[24]

I—*Multiple Sclerosis:* These patients frequently develop optic neuritis with slight discomfort in and about the eye, followed by sudden blindness (one or two days). Fortunately, the vision usually improves in four to six weeks and may return to normal. If repeated attacks occur, permanent reduction of visual acuity results. According to Duke-Elder, the combination of uniocular nystagmus and impairment of lateral conjugate gaze is pathognomonic of multiple sclerosis. Each medial rectus is impaired but convergence is normal.

## X. VISUAL AIDS

A—*Contact Lenses:* Despite their expense, contact lenses are being increasingly used for a greater number of ocular conditions by a more educated public. Fitting of these lenses has been simplified since the adoption of the smaller microtype corneal lenses which are used without special fluids.[25]

Indications—In brief, contact lenses are useful in the following conditions:

1. Keratoconus and irregular astigmatism due to corneal scarring.
2. Unilateral aphakia, thereby producing binocular vision by reducing the size of the image. (Also now used in binocular aphakia for wider field and cosmetic improvement).
3. For cosmetic reasons, and for athletics where glasses cannot be worn.
4. Corneal protection against exposure keratitis in facial paralysis.

B—*Visual Aids for Subnormal Vision:* Of the more than 300,000 legally blind in the United States 60% have a little sight. Impaired vision has been roughly classified as follows[26]:

1. Vision of 4/200 equals social blindness.
2. Vision of 20/200 or less in the better eye equals occupational or legal blindness.
3. Partially seeing group equals vision below 20/70. In the classroom, these children need special educational help. For those who recognize hand

> movements only, no optical aid is helpful. An optimistic outlook is warranted, however, if a person can read large headlines with his ordinary correction. With optical aids the partially sighted frequently can read and continue in occupations when they otherwise could not.

Various telescopic magnifiers are now available, giving magnification at distance of 1.8 times up to 2.2 times. A plus 4.00 reading lens may be placed over this lens for near vision, thereby increasing the size of the image sufficiently to be legible. Greater magnification for near vision can be obtained but the field of vision and working distance are correspondingly reduced.[27]

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# THE ARTERY BANK OF DELAWARE

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Surgeons in the various hospitals of Delaware have realized for the past several years that there is a need in our community for a suitable material to be used to replace segments of arteries damaged in accidents, as well as those damaged by disease, such as aneurism. To accomplish this end, many substances such as Orlon, Nylon, and Dacron, have been tested and there are sporatic reports of success using many different materials. However, experience at the present time would indicate that the best material available for arterial grafting is the natural freeze-dried arterial homograft. This is especially true in cases where smaller vessels are in need of repair.

Many problems have arisen in the preparation of adequate freeze-dried arterial homografts. The first problem was that of obtaining permission from the immediate relatives of the deceased patient to remove segments of arteries for preparation and storage. At first this appeared to be an unsurmountable stumbling block; however, experience has shown that by the proper approach to the responsible people concerned over 50% will give immediate permission in writing for removal of such tissues at autopsy. No tissue is removed until full permission (signed and witnessed) has been granted.

Our second problem was that of obtaining sterile vessels. During the early part of our work, a sterile autopsy was performed in each case; however, it was soon discovered that many tissues taken from the body by a "sterile autopsy" would be grossly contaminated by colon bacilli if they were taken later than twelve hours after death. Obviously, we were forced to discard many tissues after we discovered that they had been contaminated so that only 10% of the available tissues could actually be used. It also became apparent that some different process would have to be made available to us for the sterilization of these vessels so that the ones which were contaminated would not have to be destroyed. This problem was answered by the discovery of the beta-propiolactone technique[1] which made it possible to sterilize blood vessels without damaging the tissue itself. This was done in the following manner. A freshly prepared 1% solution of beta-propiolactone (BPL) is placed in a suitable wide-mouthed flask containing the vessel to be sterilized. The flask containing the artery and the BPL is then placed in a water bath at 37° C. for two hours. During this time, the BPL hydrolizes and destroys any organisms on the vessel thus making it unnecessary to do a sterile autopsy. After this process has been carried out, cultures are taken, both of the solution and of the vessel surface, before the vessel is freeze-dried. In no instance have we encountered any contamination of the tissue after it has been sterilized by the beta-propiolactone technique.

The artery thus prepared is now ready for freeze-drying so that it can be stored at room temperature. To accomplish the freeze-drying, the artery is removed aseptically from the bicarbonate solution and placed into a sterile long-necked tube. The tube containing the artery is then plunged into a solution of acetone and dry ice at a temperature of —76° C. This low temperature quickly freezes the vessel, thus causing the formation of very tiny crystals rather than large crystals which would form if the vessel were frozen slowly. The formation of small crystals is essential if one is to prevent deterioration of the tissue due to freezing. This tube containing the frozen artery is then placed on the freeze-drier, described in Figure 1, the vacuum pump is put into action, and a vacuum is drawn on the apparatus. As the atmospheric pressure within the system diminishes to approxi-

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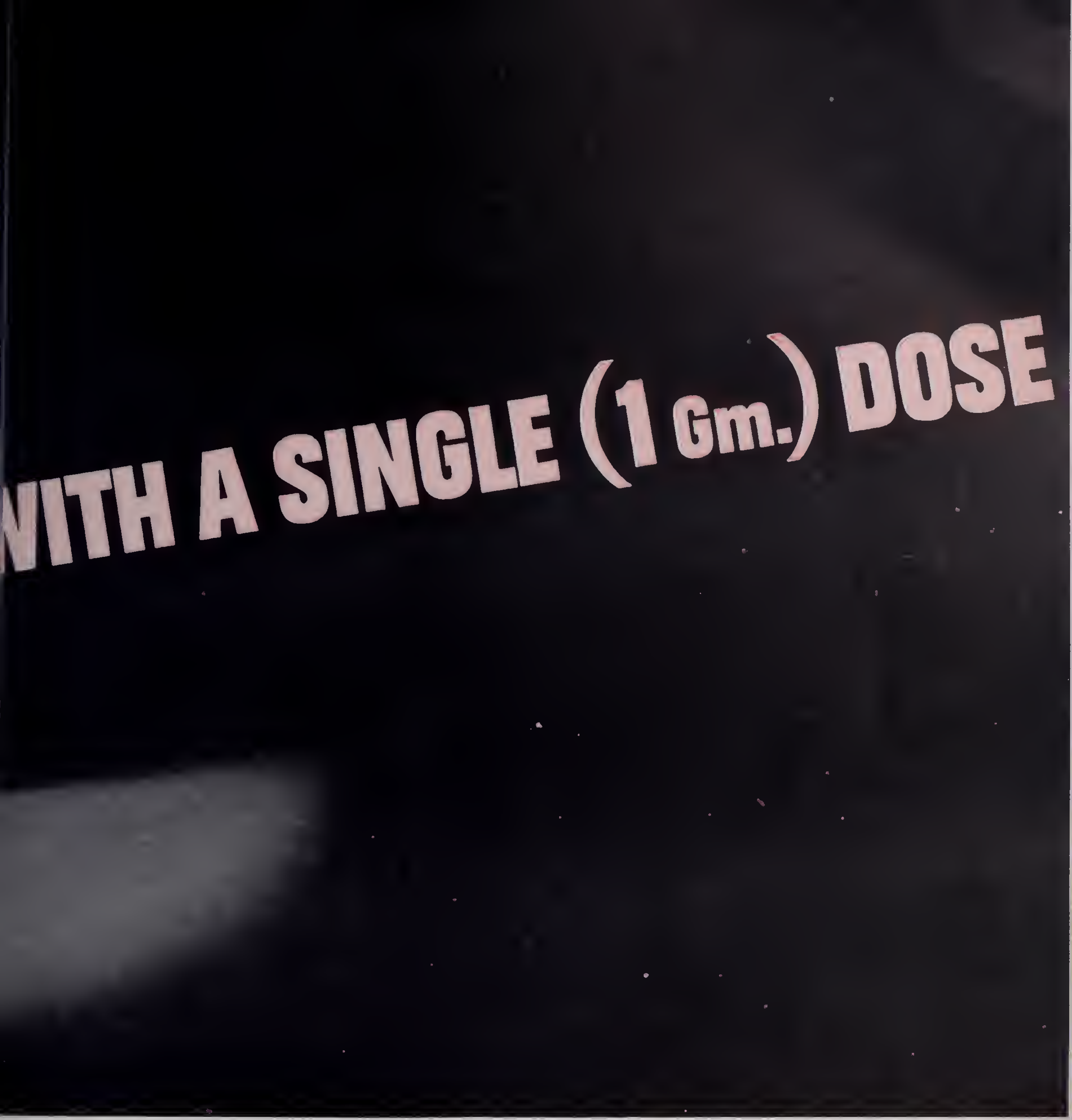

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1. Boger, W. P.; Strickland, C. S.; and Gylfe, J. M.: ntibiot. Med. & Clin. Ther. 3:378 (Nov.) 1956.

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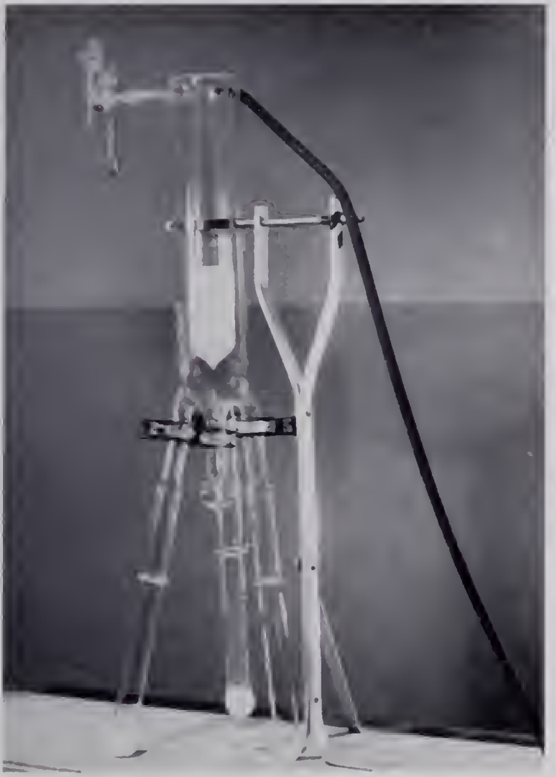

Figure 1

Note the freezing solution of acetone and dry ice in the inner chamber, the vacuum gauge on the upper left, the line to vacuum pump on the upper right, and the arteries being dried in the three lower tubes.

mately 15 microns, the kinetic energy of the molecule of the water on the surface of the artery enables the water to pass from the solid to the gaseous stage (sublimination) only to be recondensed on the cold surface of the condenser, which contains a solution of acetone and dry ice with a temperature of —76° C. As the process continues, all the moisture leaves the artery to be recondensed on the surface of the condenser. After approximately eighteen hours all the moisture has been removed from the vessel and it appears white and dry. A large frost appears on the condenser. At this time the vacuum is released, the vacuum pump is turned off, and the glass tubes are removed from the freeze-drier. These tubes are then taken to a glass blowers laboratory where they are immediately sealed under a high vacuum, using the glass blowers torch. A flange is also placed on the neck of the glass tube, as seen in Figure 2. This flange will enable one to crack the glass container at that point with the slightest twist. After vacuum sealing, the dried artery can be stored at room temperature to be used at any time.

When the patient arrives in the operating room with an apparent arterial injury requiring an artery graft, the sterile tube containing the sterile freeze-dried artery is placed on the operating room table. The tube is broken and the vessel is reconstituted by simply bathing it in sterile saline solution for twenty minutes before use. The vessel thus regains the soft, pliable texture that it had previous to freeze-drying, and is now ready for implantation (end to end or end to side anstomosis) to the damaged artery.

The technique of vascular anstomosis is not a difficult one if one remembers a few simple technical rules. First, debridement must be adequate so that there will be no necrotic tissue present to help cause wound infection and graft failure. Second, the ends of the damaged artery must be freed of frayed edges and hematoma so that a close approximation of the tissue with the arterial graft can be accomplished. Third,

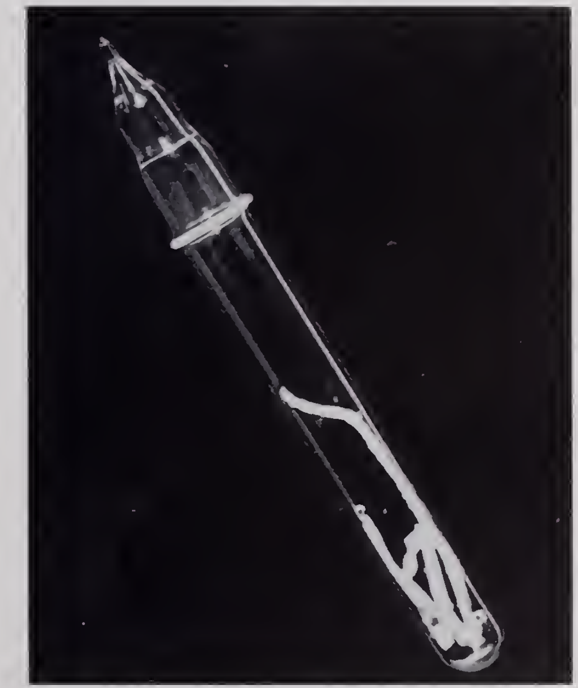

Figure 2

Freeze-dried femoral and popliteal arteries sealed in a vacuum tube ready for storage at room temperature.

tension between the severed ends of the artery and the graft itself must be minimal. Fourth, the suture which is 4-0 Dekknettkal in the larger vessels and 5-0 Dekknettkal in the smaller vessels should be placed as a loose, not tight, continuous through and through everting suture around the entire vessel. The suture is placed loosely so that as the arterial clamps are released and the blood begins to flow through the vessel, the vessel will begin to stretch and the suture will become tighter. As the vessel assumes its normal size the suture will become tight and all bleeding will cease. If, however, the suture is placed tightly before the blood is allowed to flow, stenosis will form at the site of the anstomosis when the vessel is stretched to its normal size. This will cause thrombosis and graft failure. In repairing larger vessels such as the aorta, I have found it satisfactory to sew the aorta in four quadrants starting posteriorly. A continuous suture is started at six o'clock and carried up to the nine o'clock position where it is tied to a second suture which is started at nine o'clock and carried to the twelve o'clock position. This in turn is tied to a suture which is started at twelve o'clock and carried to the three o'clock position, and so forth. After an adequate blood flow is established through the vessel, the wound is irrigated, muscle flaps are placed over the vessel, and the skin is closed, either by direct suturing or pedical grafting if necessary. It is essential that these patients are given antibiotic therapy, and that the afflicted limb be immobilized in a plaster cast. Failure of immobilization can be one of the prime causes of graft failure in traumatic cases.

As tissues become available and are preserved in this manner, they are being stored in complete sets in the operating rooms of the various hospitals to be available in any emergency. Once each hospital in Delaware has secured an adequate supply, the Central Artery Bank will stockpile the additional arteries and make them available to the hospitals as the need arises.

The author acknowledges the technical assistance of Mr. Robert Varland and Mr. Harry Weir of the Atlas Powder Company.

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# THE PHYSIOLOGICAL ACTION OF THE TRANQUILIZER DRUGS

by

K. M. Corrin, M.D.*

Probably the greatest benefit of the tranquilizer drugs has been to bring about in the mind of physicians the fact that disorders of the brain and nervous system are essentially organic in nature, the same as physiological and pathological disorders of any other organ, and that they respond in the same way to drug therapy. Diagnosis of these disorders is also becoming more and more accurate—anatomical and physiological in nature, rather than symptomatic, as in the past. This change in thinking calls for a more specific type of drug therapy and one finds in the tranquilizer drugs, agents which tend to have a major effect on specific parts of the nervous system, just as symptoms point to disorders in specific parts. The following briefly summarizes these major physiologic effects of the basic tranquilizer drugs.

*Chlorpromazine (Thorazine)*, and its less potent cousin *Compazine*, act primarily on cortical functioning, blocking ideation impulses—fears, illusions, delusions and hallucinations. This drug was early considered a chemical substitute for lobotomy and is still used as such. In the borderline psychotic its skillful use, in combination with related therapy, may keep the patient out of a mental institution.

*Rauwolfia (Reserpine)* apparently acts in modifying nerve impulses from the midbrain and brain stem structures. Instinctive tension, fears and worries, as seen in the agitated senile individual, and the patient with hypertension of nervous origin, often respond well to Reserpine.

The *belladonna alkaloids* (atropine especially) are the best drugs to quiet autonomic overstimulation—the result of overaction of the post ganglionic (cholinergic) visceral efferent fibres. Overstimulation of this system is the chief factor in producing the troublesome symptoms of the neuroses —chiefly visceral and sphincter tension and spasms, relatively chronic in nature. Given in small doses, alone or in combination with phenylethyl barbituric acid (phenobarbital), and over a long period of time, the doctor will often find it to be his most effective and satisfactory drug in treating nervous tension states.

*Meprobamate (Miltown, Equanil)* acts somewhat like curare, blocking nerve impulse transmission at neuromyal junctions and to a lesser degree at autonomic ganglionic synapses. It may often be combined effectively with belladonna to quiet both the somatic and visceral musculature.

*Phenylethyl barbituric acid (phenobarbital)* is probably the most commonly used, the safest, the cheapest and the most effective of all the tranquilizer drugs. In addition to its being the best and safest anticonvulsant agent for long term use, it is also an excellent hypnotic when given in proper dosage. Its physiological action is that of a central nervous system depressant, the degree depending on the dosage—in small doses it acts as a tranquilizer, in moderate doses a hypnotic, and in large doses a depressant.

In the use of these drugs, and the treatment of nervous and mental disorders generally, there are several essentials which the physician should keep in mind.

*First*, that these drugs are potent and complete knowledge of their actions and effects are necessary for their most effective use.

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*Chief, Neurological Service, Wilmington General Hospital.

*Second,* that close medical supervision is required—they are not for self medication.

*Third,* that optimism, patience and time are essential in the treatment of all nervous and mental disorders.

*Fourth,* that often, when one drug or dosage is unsatisfactory, a change to another drug or combination may be more effective.

*Fifth,* that confidence of the patient in the therapist and his ability is part of the treatment. This is best obtained by the doctor taking time to obtain an unhurried history including a little of the personal side of the patient's life (hopes, fears and behind-the-scene problems), plus a good physical examination and laboratory study. A little time-taking psychotherapy is uniformly necessary in the treatment of all nervous and mental patients but the family doctor with a medical outlook, who will take a little extra time for this psychotherapy, will always have the patient's confidence to a greater degree than the psychiatrist with a purely psychological point of view. This is essential in influencing the patient to follow suggestions and continue treatment until recovered.

# PICKWICKIAN SYNDROME*

ANTERO Q. SORIANO, M.D.**
AND
J. R. DURHAM, JR., M.D.***

There is a rare association of signs and symptoms described by Charles Dickens in "The Pickwick Papers". His description of the fat boy, a character with marked obesity and somnolence, has given rise to the term "Pickwickian Syndrome". Its clinical features are marked obesity, somnolence, twitching, cyanosis, periodic respirations, secondary polycythemia, right ventricular hypertrophy and failure.

Review of the recent publications on this subject[1] are of particular interest in the case to be presented. Several writers on this syndrome have indicated that increasing abdominal girth is accompanied by a decreasing expiratory reserve and if the increase in girth is extreme, it may lead to a state of relative ventilatory insufficiency.

Sieker and his colleagues[3] in 1954 have reported four patients with extreme obesity and in whom somnolence, periodic respirations, intermittent cyanosis, polycythemia and right axis deviation were noted. Ventilatory studies revealed diminished total lung volume, diminished expiratory reserve volume and diminished functional residual capacity. The study made by Sieker and others is the first modern and scientific description of this syndrome which they named "obesity heart disease".

Auchincloss and others[2] stated that these patients with obesity, cyanosis, dyspnea and edema have erythrocytosis and right ventricular hypertrophy but no evidence of disease of the lungs, chest wall or central nervous system. Physiologic study showed the presence of marked arterial hypoxia, hypercapnia and severe alveolar hypoventilation. This was characterized by a marked reduction in tidal volume without an increase in respiratory frequency sufficient to maintain normal alveolar hypoventilation. Marked pulmonary arterial hypertension and increased cardiac output were also present. There was no evidence that these findings were initiated by an abnormal cardiac or vascular communication. Treatment with bed rest, low salt diet, mercurials, digitalis and phlebotomy was associated with disappearance of dyspnea and edema. When studied after ten months of such treatment, arterial hypoxia and hypercapnia and alveolar hypoventilation were still present, although to a lesser degree than at the time of initial observation. All of the physiologic abnormalities have been attributed to the alveolar hypoventilation. However, the initiating mechanism for the alveolar hypoventilation was not discovered.

## CASE REPORT

A 35-year-old white, married carpenter was admitted to the Wilmington General Hospital on November 19, 1956 with the chief complaint of being unable to stay awake. For more than a year, he frequently lapsed into sleep at unpredictable times, so much so that he would fall asleep at the table, while talking and even while at work. These sleeping episodes were intermittent. He usually slept for two to five hours duration. Sometimes, he was extremely difficult to awaken and would sleep one to two days if not disturbed. During the past year, he had attacks at the rate of one to two a week. He had gained weight gradually for the last four to five years and one month prior to admission his weight was 305 pounds.

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* From the Medical Service, Wilmington General Hospital
** Chief Resident
*** Attending Chief, Medical Service

The past history revealed measles, mumps and chickenpox during childhood. One year previously he was admitted to another hospital with the chief complaint of "too much water in me". He was then in a state of somnolence. Laboratory studies showed red blood cells, white blood cells, hemoglobin, blood urea nitrogen, carbon dioxide combining power, blood sugar, total protein, and albumin/globulin ratio to be normal. There was one plus albumin in the urine. The blood serology was negative. The heart was top normal in size by x-ray and there was slight haziness in the left lung field. Two electrocardiograms revealed T-wave changes possibly due to digitalis effect, coronary insufficiency or subendocardial infarction. His blood pressure was 130/90. Treatment consisted of vitamins, diuretics, antibiotics and anticoagulants. His respirations became irregular and labored. He was aroused with great difficulty. After one week he walked out of the hospital against advice.

Three months before admission he was treated for cardiac failure and obesity with diuretics, digitalis and sedatives. He responded well to the regimen for awhile but then went into coma with asthmatic breathing; later on consciousness was regained.

The father was a tall, husky man who weighed 220 pounds and died as a result of an accident. The mother, brothers and sisters are living and apparently healthy and well. None of them is obese.

On admission to the Wilmington General Hospital he was markedly obese, cyanotic and so drowsy that he could not stay awake for a minute. He would respond to painful stimulation but became hostile and violent and struggled to get out of bed when forcibly awakened. Respirations were 26 per minute and irregular with loud snoring.

He was afebrile, his pulse was 90 per minute and his blood pressure was 136/90. There was nothing remarkable in the physical findings except for distant heart and breath sounds. The neurosurgeon who saw him thought that the cerebral manifestations were more compatible with polycythemia than with intrinsic intracranial disease.

The only laboratory studies which could be accomplished prior to death were: red blood cells 5,080,000, white blood cells 11,750, hemoglobin 14.8 Gm, segmented neutrophiles 79%, lymphocytes 13%, monocytes 8% and 3 nucleated red cells. Urinalysis showed specific gravity of 1.025, with sugar and acetone negative; however it was loaded with hyaline and fine granular casts. The carbon dioxide combining power was 64 volumes %, the blood sugar was 150 mg.%, blood urea nitrogen was 42 mg.% and the serology was negative.

He was put at complete bed rest and was given oxygen therapy and intravenous fluids. In spite of treatment, he remained cyanotic and continued to be comatose until he died fourteen hours after admission.

Autopsy resulted in the following pathological diagnosis: 1)—hypertrophy and dilation of the right ventricle; the heart weighed 850 Gm. 2) hydropericardium (100 c.c. of fluid) 3) bilateral hydrothorax 4) congestion of the lungs 5) chronic passive congestion of the liver 6) hepatomegaly 7) ascites 8) obesity.

## SUMMARY

A short resume of the literature on the Pickwickian Syndrome with a case report is presented. The presence of alveolar hypoventilation in connection with this symptom complex has been discussed.

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# ✚ Editorials ✚

## THE SLEEPY FAT BOY

It is altogether fitting that a new disease entity be called "The Pickwickian Syndrome" despite a popular aversion to the use of medical eponyms. While truly a controversial figure, Charles Dickens was acknowledged by all to be a keen observer and reporter of people. It therefore is not surprising to find in his writings some classical descriptions of disease.

Dickens was a contemporary of some giants of British medical history—Astley Cooper, John Abernethy, Richard Bright, Matthew Baillie, William Jenner, Dominic Corrigan and Joseph Lister to name but a few. It therefore is of unusual significance that in 1870 the editor of the British Medical Journal said that Dickens would have made a great physican because of his keen powers of observation.

The editor mentioned that Dickens' description of "hectic" had been incorporated into several standard textbooks and gave him credit for priority in describing the relationship of right hemiplegia to aphasia.

This Journal is proud, therefore, to present a case report of the Pickwickian syndrome and to hope that this name may survive.

## ORAL ANTI-DIABETIC DRUGS

The Diabetes Committee of the Medical Society of Delaware wishes to warn against injudicious use of Tolbutamide (Orinase), a sulfonyl urea, recently released for sale upon prescription through regular drug channels.

Even in those patients whose blood and urine sugars are well controlled by Orinase, should an intercurrent infection arise, insulin must be used immediately to avoid acidosis and coma.

Orinase is ineffective in a juvenile diabetic.

Orinase should not be given to patients with liver disease.

Orinase may cause pseudo-albuminuria which may require complicated chemical tests to differentiate from true proteinuria.

This drug is not an insulin substitute; it is a hypoglycemic agent, the exact mode of action or long term effect of which is not yet known.

The Committee urges careful observation of patients who receive Orinase and will appreciate receiving information concerning any difficulties encountered.

## BOOK REVIEWS

CURRENT THERAPY 1957: Latest Approved Methods of Treatment for the Practicing Physician. Editor: Howard F. Conn, M.D. Consulting Editors: George E. Burch; M. Edward Davis; Vincent J. Derbes; Garfield G. Duncan; Hugh J. Jewett; Perrin H. Long; Clarence S. Livingood; H. Houston Merritt; Walter L. Palmer; Hobart A. Reimann; Cyrus C. Sturgis; Robert H. Williams. 731 pages. 1957. W. B. Saunders Company, Philadelphia. $11.00.

This volume, the ninth in the series, follows a format established in the earlier editions. It is a collection of short essays on treatment, written by approximately three hundred contributors. The book is divided into sixteen sections, fifteen covering various phases of medicine and the sixteenth containing appendices and indices. The individual articles vary in quality and there is a noticeable difference in editing when the various sections are compared. The sections concerned with diseases of the respiratory system; disorders of metabolism and nutrition; diseases of the locomotor system; and diseases due to physical and chemical agents are well worth reading. Excellent tables listing active poisonous ingredients in various commercial products are available.

The major points of criticism are, first, that references are few and a bibliography is not available, making it difficult to check source material; second, controversial subjects are covered without debate. In this reviewers opinion any book which is used for reference must at least recognize differences of opinion. While it is an author's prerogative to stress his own views, it is also incumbent upon him to at least mention other recognized ideas.

This book is current therapy only for each individual author. It is not necessarily the best or only therapy applicable in the diseases discussed. For these reasons this book is recommended only for those already familiar with the diseases and therapies covered.

L. P. L.

EPILEPSY AND THE LAW. By Roscoe L. Barrow, Dean, University of Cincinati College of Law; Legal Advisor, Special Committee on Legislation, American League Against Epilepsy; and Howard D. Fabing, M.D., Past President, American Academy of Neurology; Chairman, Legislation Committee, American League Against Epilepsy. 177 pages. 1956. Paul B. Hoeber, Inc., New York. $5.50.

"Epilepsy and the Law" is a proposal for legal resume' in the light of medical progress in the diagnosis, therapy and rehabilitation of epileptics. The authors have combined their knowledge and background to review the current status of the legal aspects of epilepsy and have made valuable suggestions as to future alterations of a more realistic nature. The book consists of an introduction stating the facts of epileptic frequency and the success in its therapy and then goes on to discuss the specific recommendations in the field of (1) marriage license laws, (2) sterilization laws, (3) driver's license laws, and (4) workmen's compensation laws.

The book is endorsed by the special committee on legislation of the American League Against Epilepsy. Of the approximately one and one-half million epileptics in the United States, almost 80% have their seizures satisfactorily controlled by proper medication. Yet despite this, society has been prejudiced against the epileptic so that he suffers socially, economically and psychologically. It is to remove the stigma of isolation and discrimination which does not exist realistically in light of modern medical knowledge and progress that this book was written.

The current status of the marriage license laws pertaining to epileptics is shocking. The same situation applies to driver's license laws, and the book contains a model statute which already has been operating successfully in Wisconsin. It is felt that the current laws tend to drive epileptics "underground" and create far more hazards and difficulties than the help which they presume to afford. The remainder of the discussion applying to workmen's compensation laws and miscellaneous laws affecting epileptics such as immigration, criminal responsibility of the epileptic, commitment of epileptics to institutions, and education of epileptic children, is excellently written. The last section on findings and recommendations is concise and clear.

It is the hope of this reviewer that this book will be but the first of a series of similar surveys and recommendations. Certainly there are many illnesses which have created about them an aura of prejudice and stigma with resulting socio-economic detriment to the individual. We hope that this book will point the way.

J. K.

CLINICAL USE OF RADIOISOTOPES. By William H. Beierwaltes, M.D., Associate Professor of Internal Medicine and Coordinator, Clinical Radioisotope Unit, University Hospital, Ann Arbor; Philip C. Johnson, M.D., Assistant Professor of Internal Medicine and Chief, Radioisotope Unit, Veterans Administration Hospital, Oklahoma Medical School, Oklahoma City; and Arthur J. Solari, B.S., M.S. (Physics), Instructor in Radiation Physics, Department of Radiology, Radiation Physicist for Clinical Radioisotope Unit and Kresge Research Iostope Unit, University Hospital, Ann Arbor. 456 pages with 126 illustrations. 1957. W. B. Saunders Company, Philadelphia. $11.50.

This book is a good survey of the clinical application of radioactive isotopes. It is especially suitable for persons who are actually engaged in the use of these tools or for those who hope to institute an isotope program. Many sections of the book such as the ones on thyroid physiology and on I-131 tests of thyroid function, are of value for any clinician who has patients needing isotope tests. Except for the sections on physics, atomic energy commission requirements, and instrumentation, the text is clinically centered and thus is understandable to those who have had no preliminary experience with radioactive medicine. While theoretically the novice could start from the beginning of the book and develop a good understanding of the theories and practices of an isotope laboratory, the book itself will not substitute for experience in the laboratory.

In an effort to make the physics clear, some of the explanations seem a bit brief. The problems of counting statistics and geometry (especially the latter) are not sufficiently stressed and I wished that the authors' experiences with drugs and medical conditions that alter iodine uptake had been further elaborated. One fascinating comment on the rebound phenomenon in a gland previously suppressed by thyroid administration is left undeveloped and "in the air". On the other hand, much personal experience is reviewed, with the authors' choice of methods from the many various tests available for using isotopes.

The bibliographies at the end of each chapter are extensive and thus of distinct value in a young science where developments are rapid and techniques are frequently not yet standardized.

On the whole the book is excellent. The minor criticisms do not detract from its overall value.

R. W. F.

# MEDICINE'S CONTRIBUTION TO WORLD PEACE

Medicine is universally recognized as one of the great world-wide arts and sciences that bind humanity together with a language and a purpose transcending all differences of race, creed or color.

To make the language of medicine more articulate in the cause of international peace and human progress, the doctors of the free world are united in The World Medical Association, whose membership now embraces 53 national medical associations.

But it is never enough to establish great institutions. Only when *individuals* are given an opportunity to play an active part does any human organization "come alive" and begin to realize its basic purposes.

Every American doctor knows first hand the vital role he may play in guiding and protecting his profession by becoming an active member of his county, state and national medical societies.

Today, every American doctor has the opportunity—and the imperative challenge to help make our profession a stronger influence for world peace. This he may do by joining our own United States Committee of The World Medical Association.

Similar "supporting committees" have been organized in a number of other leading nations whose national medical societies, like the A.M.A., are members of W.M.A.

In a timely action, W.M.A., at its 10th General Assembly in Havana in October, adopted a six point program to implement one of its constitutional purposes: to promote world peace. This program includes the development of mutual exchange visits of foreign doctors; exchanges of distinguished medical teachers; establishment by each W.M.A. member national association of an "international visitor's bureau"; stimulation of visits by representatives of member associations to the annual meetings of other member associations; holiday exchange programs between doctors and their families; and exchanges of text books and medical and scientific publications.

To implement this program takes money — and interested members. YOU may play your part by joining the U. S. Committee of W.M.A. Active membership dues for 1957 are $10.00. To join the U. S. Committee — and to learn how you can contribute to this great cause — communicate with Dr. O. J. Pollak, 9 Kings Highway, Dover, Del.

**FOR POSITIVE DIURESIS**

# ROLICTON®

Brand of Amisometradine

- oral b.i.d. dosage
- continuous control of edema

The new, highly effective oral diuretic, Rolicton, greatly simplifies the task of maintaining an edema-free state in the patient with congestive heart failure. Rolicton meets the criteria for a dependable diuretic: continuous effectiveness, oral administration and clinical safety.

In extensive clinical studies the diuretic response clearly indicates that a majority of patients can be kept edema-free with Rolicton. In these investigations it was noted that side reactions were uncommon. When they did occur they were usually mild.

In most edematous patients Rolicton may be employed as the sole diuretic agent. When used adjunctively in severe cases, Rolicton is also valuable in eliminating the "peaks and valleys" associated with the parenteral administration of mercurial diuretics.

One tablet of Rolicton b.i.d., after meals, is usually adequate for maintenance therapy after the first day's dosage of four tablets. Some patients respond well to one tablet daily. G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

**SEARLE**

WELL, SIR, LIKE I ALWAYS SAY: I'VE GOT A DEAL WITH THE DOCTOR. HE DOESN'T CUT HAIR, I DON'T PRACTICE MEDICINE.
JOE...KNOW ANY SURE CURE FOR THIS CHEST PAIN OF MINE?

THERE'S some mighty shrewd wisdom in what Joe says. But human nature being what it is, far too many of us still seek medical advice from those who aren't qualified to give it.

No matter what's bothering you . . . constant fatigue, nerves on edge, recurring aches and pains . . . it is never wise to stay away from your doctor in the hope that you'll run into somebody who will know "just what's best" for your trouble. In fact, it's often dangerous to accept an amateur's "sure cure."

Seek a friend's advice, if you wish, on almost any other problem. But when it comes to your health, and that of your family, by all means don't let anyone other than a physician advise you.

By seeing your doctor at the first sign of trouble, you will not only avoid the hazards of amateur medical advice, but chances are you will save time and money in the long run. In fact, prompt and proper medical care may well turn out to be one of the biggest bargains ever to come your way

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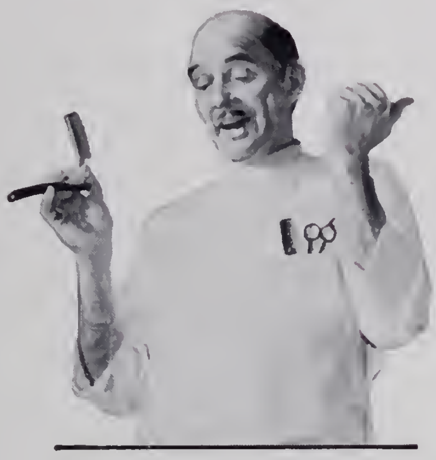
MAKERS OF MEDICINES SINCE 1866

*Working with your physician, your pharmacist and your hospital to make modern medical care one of the most rewarding investments of your life.*



**"Joe, the barber" speaks up again . . .**

You've met Joe before, doctor—in the 1956 Parke-Davis series of public service messages. And thanks to your warm reception of that advertisement last year . . . so enthusiastically expressed in your letters to us . . . we're featuring "Joe" again—this time in eye-catching color.*

You'll remember Joe's words of wisdom about seeking professional medical advice from the doctor rather than from the "amateur." His remark points up the fact that, by consulting *you* at the first sign of trouble, your patients will save time and money in the long run . . . perhaps even their lives.

Like all ads in the colorful P-D series, we believe this latest message will give your patients and prospective patients a better understanding of the importance of *prompt* and *proper* medical care.

PARKE, DAVIS & COMPANY
Detroit 32, Michigan

* This advertisement appears in the June 17th issue of Life: circulation more than 5½ million; total readership, over 15 million.

# Steroid-Nutritional Therapy Is Constructive Approach for the First Signs of Aging

## Emphasis on Early Treatment Before "Damage" Is Done

*The first subtle suggestions of physiologic deterioration should not be dismissed if serious somatic and metabolic disorders are to be avoided. Prompt institution of steroid-nutritional therapy may forestall and even reverse premature "damage" and help prolong the active life of the patient.*

Some of the most common symptoms of declining gonadal function and nutritional insufficiency are vague pains in the bones and joints, easy fatigability, decreased muscular tone, loss of appetite, chronic mental fatigue and general malaise. In older patients, these complaints are frequently indicative of degenerative processes when they cannot be attributed to a specific cause.

The comprehensive formula of "Mediatric" is specifically designed to provide three therapeutic services: 1. *protect* general metabolic integrity; 2. *preserve* physiologic efficiency; 3. *prevent* premature damage.

"Mediatric" supplies estrogen and androgen in small amounts to exert a favorable influence on bone and protein metabolism,[1] restore muscle tone and coordination,[2] and increase the tensile strength of the skin.[3] The two steroids appear to have an additive metabolic effect, while their opposing action on sex-linked tissue minimizes the incidence of untoward reactions.

Dietary supplements, including essential B vitamins and ascorbic acid, ensure adequate nutrition, prevent moderate anemias, and maintain efficient enzyme systems. The mood elevating effect of a mild antidepressant helps restore emotional stability and increases mental alertness.

*Recommended dosages:* Male — 1 tablet or 1 capsule (or 3 teaspoonfuls) daily, or as required. Female — 1 tablet or 1 capsule (or 3 teaspoonfuls) daily, or as required, taken in 21 day courses with a rest period of one week between courses.

Bibliography on request.

### "MEDIATRIC"® Tablets and Capsules

Each capsule or tablet contains:

| | |
|---|---|
| Conjugated estrogens equine ("Premarin"®) | 0.25 mg. |
| Methyltestosterone | 2.5 mg. |
| Vitamin C (ascorbic acid) | 50.0 mg. |
| Thiamine mononitrate ($B_1$) | 5.0 mg. |
| Vitamin $B_{12}$ with intrinsic factor concentrate | 1/6 U.S.P. Unit |
| Folic acid U.S.P. | 0.33 mg. |
| Ferrous sulfate exsic. | 60.0 mg. |
| Brewers' yeast (specially processed) | 200.0 mg. |
| *d*-Desoxyephedrine HCl | 1.0 mg. |

Tablets—No. 752—bottles of 100 and 1,000.
Capsules—No. 252—bottles of 30, 100, and 1,000.

### "MEDIATRIC" Liquid

Each 15 cc. (3 teaspoonfuls) contains:

| | |
|---|---|
| Conjugated estrogens equine ("Premarin"®) | 0.25 mg. |
| Methyltestosterone | 2.5 mg. |
| Thiamine HCl ($B_1$) | 5.0 mg. |
| Vitamin $B_{12}$ | 1.5 mcg. |
| Folic acid U.S.P. | 0.33 mg. |
| *d*-Desoxyephedrine HCl | 1.0 mg. |

Contains 15% alcohol

No. 910—bottles of 16 fluidounces and 1 gallon.

AYERST LABORATORIES
New York, N. Y. • Montreal, Canada

5711

"MEDIATRIC" *will promote better health and vigor when the patient complains of . . . easy fatigability . . . vague pains in the bones and joints*

These symptoms may be the first signs of degenerative changes in patients over 40. "Mediatric" supplies small doses of estrogen and androgen, important dietary supplements and a mild antidepressant to forestall or even correct the "damage" of premature aging.

"Mediatric"® – steroid-nutritional compound, available in tablets, capsules and liquid.

*Ayerst Laboratories • New York, N. Y. • Montreal, Canada*

# PREVENT P.P.B.E.

Postpartum breast engorgement was satisfactorily prevented in 96 per cent of a series of 267 patients who received "Premarin" with Methyltestosterone promptly after delivery. No serious side effects were noted, and the absence of mental depression in the puerperium was notable. (Fiskio, P.W.: GP 11:70 (May) 1955.)

"PREMARIN" WITH METHYLTESTOSTERONE
for combined estrogen-androgen therapy

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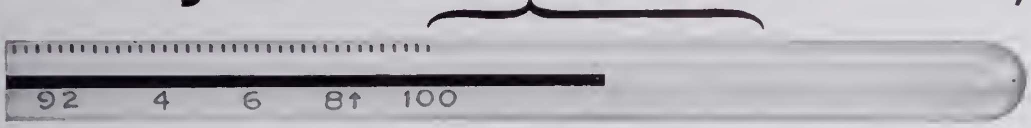
5737

**can you read this thermometer,**



**doctor?**

Naturally not. Missing calibration makes it worthless.

Equally useless and dangerous is a "quantitative" urine-sugar test that does not quantitate dependably, or omits readings in the critical range.

Enzyme urine-sugar tests are sensitive and specific for glucose—excellent "yes" or "no" tests but undependable for quantitation. King and Hainline,[1] after testing 1,000 urines, found an enzymatic urine-sugar test unable to distinguish in the important range between ½ per cent and 2 per cent or more of urinary glucose. Leonards,[2] in a report on 4,020 tests, revealed that "...in 502 out of 804 tests the wrong interpretation was made." He concluded that enzymatic urine-sugar testing "...as a quantitative procedure is unsatisfactory and can lead to serious error in the interpretation of a patient's clinical condition."[2]

Failure to recognize this limitation of enzyme tests may result in incorrect insulin dosage,[2] and may lead to diabetic complications.

(1) King, J. W., and Hainline, A., Jr.: Commercial Glucose Oxidase Preparations for the Detection of Glucose in Urine, Cleveland Clin. Quart. 23:212, 1956. (2) Leonards, J. R.: Evaluation of Enzyme Tests for Urinary Glucose, J.A.M.A. 163:260 (Jan. 26) 1957.

reliable readings throughout the critical range—
does not omit ¾% (++) and 1% (+++)

color
calibrated
**CLINITEST®**
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a 15 year "standard" in urine-sugar testing

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*optimal dosages for* ATARAX,
*based on thousands of case histories:*

**25** *mg. (t.i.d.)*

*for these* **25** *adult indications:*

**TENSION SENILE ANXIETY MENOPAUSAL SYNDROME ANXIETY PREMENSTRUAL TENSION**
**PHOBIA HYPOCHONDRIASIS TICS FUNCTIONAL G. I. DISORDERS PRE-OPERATIVE ANXIETY**
**HYSTERIA PRENATAL ANXIETY • AND ADJUNCTIVELY IN CEREBRAL ARTERIOSCLEROSIS**
**PEPTIC ULCER HYPERTENSION COLITIS NEUROSES DYSPNEA INSOMNIA**
**PRURITIS ASTHMA ALCOHOLISM DERMATITIS PARKINSONISM PSORIASIS**

*perhaps the safest ataraxic known*

PEACE OF MIND ATARAX®
(BRAND OF HYDROXYZINE)
*Tablets-Syrup*

**10** *mg. (t.i.d.)*

*for these* **10** *pediatric indications*

**ANXIETY TICS HOSTILITY NIGHTMARES HYPEREMOTIVITY RESTLESSNESS**
**TEMPER TANTRUMS HOSPITAL FEAR • AND ADJUNCTIVELY IN ASTHMA ENURESIS**

*Consider these 3* ATARAX *advantages:*

- 9 of every 10 patients get release from tension, without mental fogging
- extremely safe—no major toxicity is reported
- flexible medication, with tablet and syrup form

*Supplied:*

In tiny 10 mg. (orange) and 25 mg. (green) tablets, bottles of 100.

ATARAX Syrup, 10 mg. per tsp., in pint bottles.
Prescription only.

ROERIG
Rx
CHICAGO 11, ILLINOIS

YOUR PATIENT NEEDS AN ORGANOMERCURIAL

Practicing physicians know that many years of clinical and laboratory experience with any medication are the only real test of its efficacy and safety.

Among available, effective diuretics, the organomercurials have behind them over three decades of successful clinical use. Their clinical background and thousands of reports in the literature testify to the value of the organomercurial diuretics.

TABLET
**NEOHYDRIN®**
BRAND OF CHLORMERODRIN (18.3 MG. OF 3-CHLOROMERCURI-2-METHOXY-PROPYLUREA EQUIVALENT TO 10 MG. OF NON-IONIC MERCURY IN EACH TABLET)

a standard for initial control of severe failure

**MERCUHYDRIN® SODIUM**
BRAND OF MERALLURIDE INJECTION

LAKESIDE

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Be sure your home has adequate "Housepower" for all the appliances you want to use today—and in the future. Adequate wiring for today's modern electrical living . . . serves and saves.

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$10,860 to $12,000; $11,400 to $12,600;
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Increases being considered effective July.
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*Borden's*

*ICE CREAM*

*specifically for reduction of overweight*

# PRELUDIN®

(brand of phenmetrozine hydrochloride)

*"...a highly effective and safe appetite suppressant..."*[1]

Based on clinical reports, PRELUDIN produces more than twice the weight loss achieved by patients receiving a placebo.[2] It is singularly free of tendency to produce serious side actions, as well as stimulation.[1-3] PRELUDIN imparts a feeling of well-being that encourages the patient to cooperate willingly in treatment.[1-3]

The reduced incidence of side actions with PRELUDIN makes losing weight more comfortable for the average patient, facilitates treatment of the complicated case and frequently permits its use where other anorexiants are not tolerated.[3]

*Recommended Dosage:* One tablet two to three times daily one hour before meals. Occasionally smaller dosage suffices. On theoretical grounds, PRELUDIN should not be given to patients with severe hypertension, thyrotoxicosis or acute coronary disease.

(1) Holt, J. O. S., Jr.: Dallas Med. J. *42*:497, 1956. (2) Gelvin, E. P.; McGavack, T. H., and Kenigsberg, S.: Am. J. Digest. Dis. *1*:155, 1956. (3) Natenshon, A. L.: Am. Pract. & Digest Treat. *7*:1456, 1956.

PRELUDIN® (brand of phenmetrazine hydrochloride). Scored, square, pink tablets of 25 mg. Under license from C. H. Boehringer Sohn, Ingelheim.

**GEIGY** Ardsley, New York 77857 Geigy

**Income* for the members of the Delaware Medical Profession from the first day* of sickness or injury...**

**NOW! Not for only 26 weeks — Not for only 52 weeks**

**but even for your entire lifetime**

House Confinement not required at any time

Accidental loss of hands, feet or eyesight pays monthly benefits — not just a lump sum

**EXTRA BENEFITS** — Double monthly benefits while you are hospitalized payable for as long as three months

Cash benefits for accidental death

Double income benefits if disabled in specified travel accident named in the policy

**OTHER IMPORTANT FEATURES** — Waiver of Premium Provision • Limited Commercial Air Line Passenger Coverage • No Automatic Termination Age During Policy Period • A Special Renewal Agreement

*Covers most accidents from date of policy and most sickness originating more than 30 days after date of policy, excepting those incurred while in military service of any country at war, or resulting from war, any act of war, suicide, attempted suicide, insanity, mental disease, certain foreign travel, any pre-existing condition or any hazard of aviation other than commercial air line passenger travel*

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OF AMERICA

MP-3208

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302 Eig Building, 8641 Colesville Rd., Silver Spring, Maryland

I would like more information about your lifetime disability income protection

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Address ..................................................
or attach letterhead

*Income payable from first day of medical attention and as long as continuous total disability, total loss of time and medical attendance continue

**Mail coupon today while you are still healthy**

*kids really like...*

**RUBRATON**

SQUIBB IRON, B COMPLEX AND $B_{12}$ VITAMINS ELIXIR

- to correct many common anemias
- to correct mild B complex deficiency states
- to aid in promotion of growth and stimulation of appetite in poorly nourished children

*Each teaspoonful (5 cc.) supplies:*

| | |
|---|---|
| Elemental Iron | 38 mg. |
| (as ferric ammonium citrate and colloidal iron)<br>(equivalent to 130 mg. ferrous sulfate exsiccated) | |
| Vitamin $B_{12}$ activity concentrate | 4 mcg. |
| Thiamine mononitrate | 1.0 mg. |
| Riboflavin | 1.0 mg. |
| Niacinamide | 5 mg. |
| Pantothenic acid (Panthenol) | 1.5 mg. |
| Pyridoxine hydrochloride | 0.5 mg. |

Alcohol content: 12 per cent

*Dosage:* 1 or 2 teaspoonfuls t.i.d.

*Supply:* Bottles of 8 ounces and 1 pint.

**SQUIBB**

*Squibb Quality—*
*the Priceless Ingredient*

'RUBRATON'® IS A SQUIBB TRADEMARK

GRADATIONS OF ANALGESIA

'TABLOID' 'EMPIRIN' COMPOUND®
Acetophenetidin gr. 2½, Acetylsalicylic Acid gr. 3½, Caffeine gr. ½

'TABLOID' 'EMPIRIN' COMPOUND
with CODEINE PHOSPHATE gr. ⅛, No. 1 (N)

'TABLOID' 'EMPIRIN' COMPOUND
with CODEINE PHOSPHATE gr. ¼, No. 2 (N)

'TABLOID' 'EMPIRIN' COMPOUND
with CODEINE PHOSPHATE gr. ½, No. 3 (N)

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with CODEINE PHOSPHATE gr. 1, No. 4 (N)

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PROVEN PAIN CONTROL

with sedation

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with light sedation

**'EMPIRAL'®**

| | |
|---|---|
| Phenobarbital | gr. ¼ |
| Acetophenetidin | gr. 2½ |
| Acetylsalicylic Acid | gr. 3½ |

**'CODEMPIRAL'® No. 2(N)**

| | |
|---|---|
| Codeine Phosphate | gr. ¼ |
| Phenobarbital | gr. ¼ |
| Acetophenetidin | gr. 2½ |
| Acetylsalicylic Acid | gr. 3½ |

**'CODEMPIRAL'® No. 3(N)**

| | |
|---|---|
| Codeine Phosphate | gr. ½ |
| Phenobarbital | gr. ¼ |
| Acetophenetidin | gr. 2½ |
| Acetylsalicylic Acid | gr. 3½ |

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in very special cases
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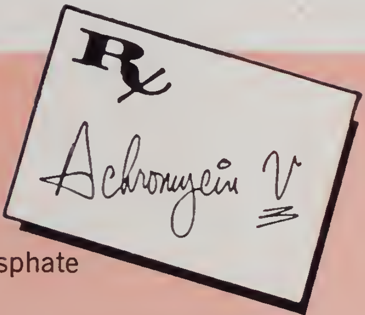
V stands for— • **greater antibiotic absorption** • **earlier therapeutic blood levels** • **faster broad-spectrum action.** ACHROMYCIN V Capsules are the new, rapid-acting, oral form of ACHROMYCIN* Tetracycline—offerin your patients, on the average, twice the antibioti absorption in half the time required by older preparations ycin V



**REMEMBER THE V WHEN SPECIFYING**

CHROMYCIN V Tetracycline Buffered with Phosphate

**CAPSULES**—Each capsule (pink) contains tetracycline equivalent to 250 mg. of tetracycline HCl, phosphate-buffered. Bottles of 16 and 100 capsules.

**SYRUP**—Each teaspoonful (5 cc.) of orange-flavored syrup contains 125 mg. of tetracycline HCl activity, phosphate-buffered. Bottles of 2 and 16 fl. oz.

CHROMYCIN V dosage: 6-7 mg. per lb. of body weight per day for children and adults.

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, N. Y. Lederle
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*widely used*
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Functional and Organic Control

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Gastro-Intestinal
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**MONODRAL®**
with **MEBARAL®**
TABLETS

*Potent* ANTISECRETORY • ANTICHOLINERGIC • SEDATIVE

*Each tablet contains:*

| | |
|---|---|
| Monodral bromide | 5 mg. |
| Mebaral | 32 mg. |

**PROVIDES**

Dependable control of hyperacidity and hypermotility. Spasmolysis. Prompt and prolonged pain relief. Tranquillity without drowsiness.

**DOSE:**

Peptic ulcer, 1 or 2 tablets three or four times daily. Other gastro-intestinal disorders, 1 tablet three or four times daily.

**SUPPLIED:** Bottles of 100 tablets.

Winthrop LABORATORIES
[illegible]

Monodral (brand of penthienate)
and Mebaral (brand of mephobarbital),
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**Protective Coating with**

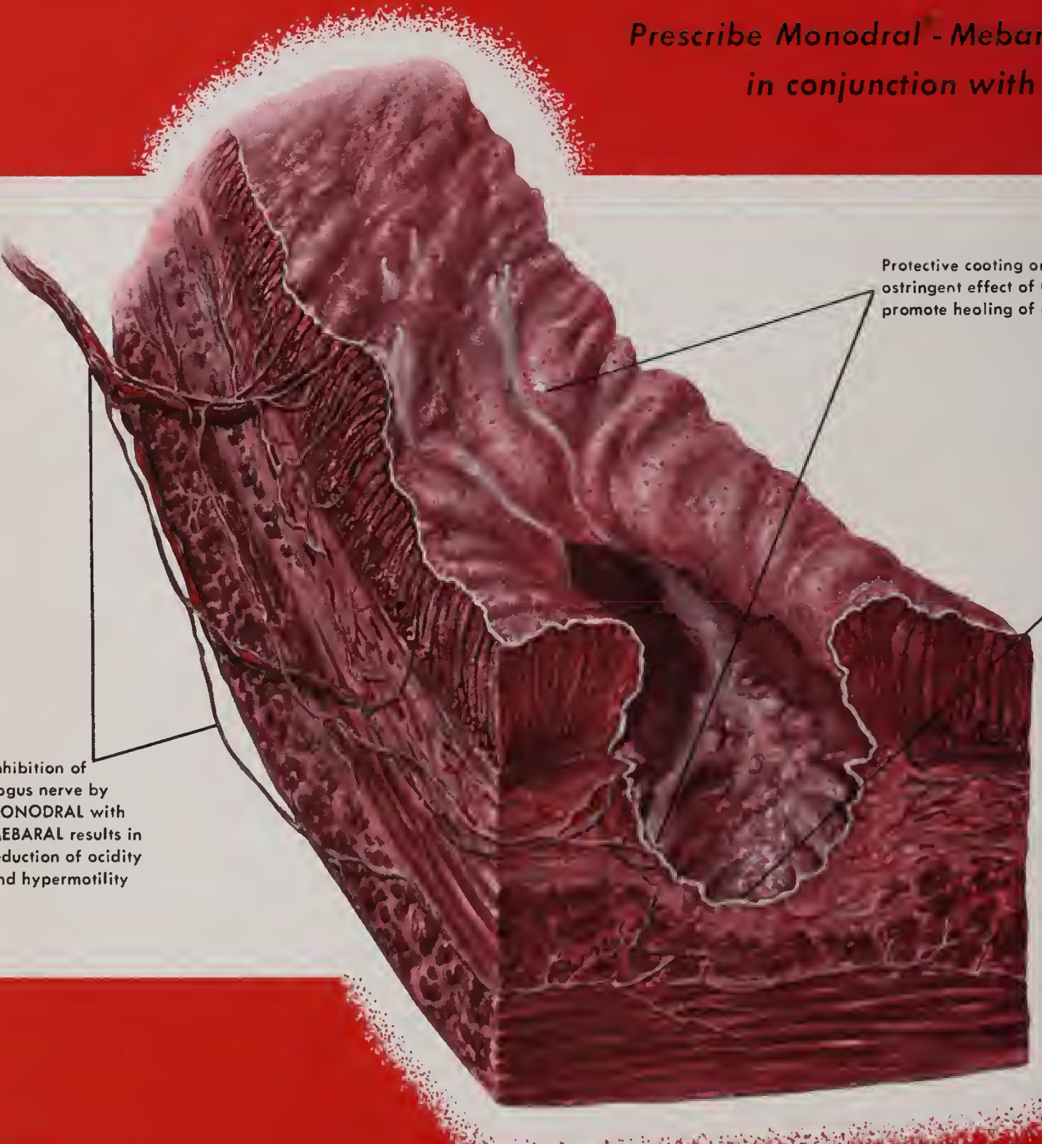
# Creamalin®

PIONEER ALUMINUM HYDROXIDE GEL

**FAST ACTING REACTIVE GEL**

## *For best results in* PEPTIC ULCER

***Prescribe Monodral® - Mebaral® tablets in conjunction with Creamalin***



Protective coating and mild astringent effect of CREAMALIN promote healing of peptic ulcer.

CREAMALIN

Inhibition of vagus nerve by MONODRAL with MEBARAL results in reduction of acidity and hypermotility

**DOSE:**

From 2 to 4 teaspoonfuls Creamalin liquid or from 2 to 4 Creamalin tablets (well chewed) every two to four hours, with a small amount of water or milk.

***Creamalin liquid*** — 8 and 16 fl. oz.

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*reflecting*... a pattern of clinical usage followed the world over

Pentothal Sodium has been in constant use for 23 years. In that time more than 2500 reports have been published on Pentothal, covering nearly every type of surgical procedure—*making Pentothal unmistakably the world's most widely studied intravenous anesthetic.* Reflected in these years of use and volumes of reports is a record unsurpassed for safety, effectiveness and versatility of use in intravenous anesthesia. Do you have the literature?

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# NEW...

RELIEVES ANXIETY AND TENSION
RELIEVES JOINT INFLAMMATION
'M
RELIEVES DISCOMFORT AND DISABILITY
RELIEVES MUSCLE SPAS

Each Multiple Compressed Tablet of MEPROLONE provides the inseparable antiarthritic, antirheumatic benefits of:

1. *Prednisolone buffered*—the newest and most potent of the "predni-steroids" for prompt relief of joint pain and arrest of the destructive inflammatory process.

2. *Meprobamate*—the newest and safest of the muscle-relaxant tranquilizers for profound relaxation of skeletal muscle in spasm.

Tolerance to this combination is good because there is little likelihood of sodium retention, potassium depletion or gastric distress with buffered prednisolone, and meprobamate rarely produces significant side effects in therapeutic dosage.

An additional important therapeutic benefit, often overlooked, stems from the tranquilizing action of meprobamate. This component of MEPROLONE relieves mental tension and anxiety so often manifest in arthritics, making them more amenable to other rehabilitation measures.

***INDICATIONS:*** A wide variety of conditions, in which four symptoms predominate: *a)* inflammation *b)* muscle spasm *c)* anxiety and tension *d)* discomfort and disability; i.e., rheumatoid arthritis, rheumatoid spondylitis (Marie-Strümpell disease), Still's disease, psoriatic arthritis, osteo-

**Therapeutic benefits of MEPROLONE compared with traditi**

| | relieves pain | suppresses inflam-mation | relaxes muscle | ease anxie |
|---|---|---|---|---|
| **Salicylates** | ✓ | ✓ | | |
| **Muscle relaxants** | | | ✓1 | |
| **Tranquilizers** | | | | ✓ |
| **Steroids** | ✓ | ✓ | | |
| **MEPROLONE** | ✓ | ✓ | ✓ | ✓ |

*1. Meprobamate is the only tranq*
*muscle-rela*

arthritis, bursitis, synovitis, tenosynovitis, m
sitis, fibromyositis, neuritis, acute and chro
pain, acute and chronic primary and second
and torticollis, intractable asthma, respirat
allergic and inflammatory eye and skin disord
tenance therapy in disseminated lupus er
periarteritis nodosa, dermatomyositis and s

***SUPPLIED:*** Multiple Compressed Tablets
100 in two formulas as follows: MEPROLON
of prednisolone, 200 mg. of meprobamate an
dried aluminum hydroxide gel. MEPROLONE
2.0 mg. of prednisolone in the same formul

NO OTHER
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MEPRO | BAMATE
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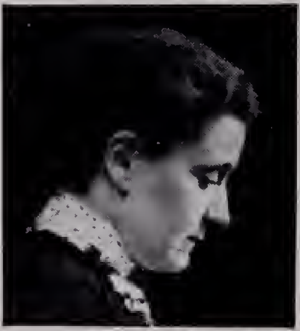

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# DELAWARE STATE MEDICAL JOURNAL

*Official Organ of the Medical Society of Delaware*

INCORPORATED 1789

VOLUME 29 | JULY, 1957 | NUMBER 7

## THE DELAWARE HOSPITAL

## HOME CARE PROGRAM

Complete Contents on Page iv

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## REFERENCES:

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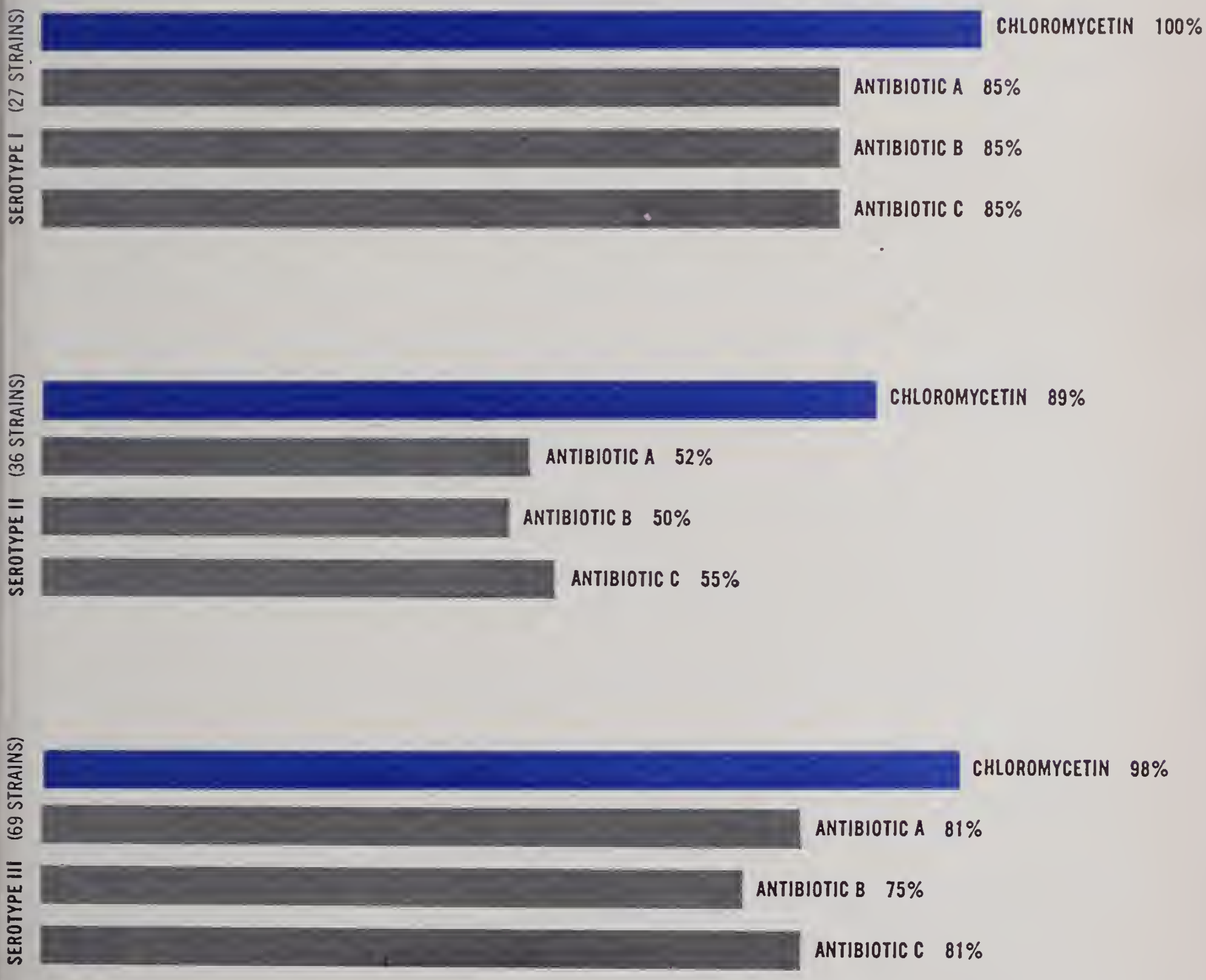

*This graph is adapted from Metzger & Jenkins.[1] Inhibitory concentrations were 12.5 mcg. or less.

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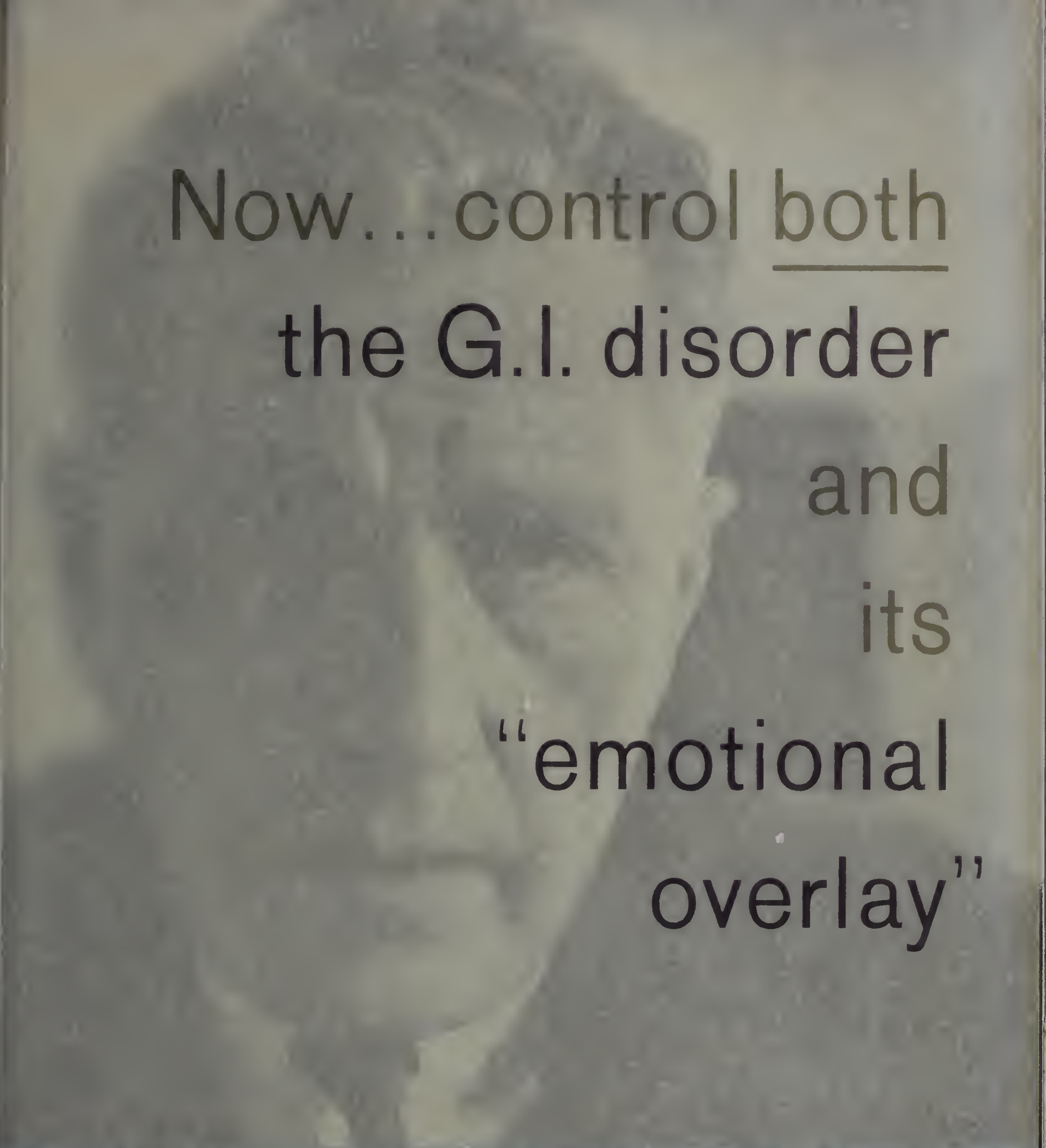

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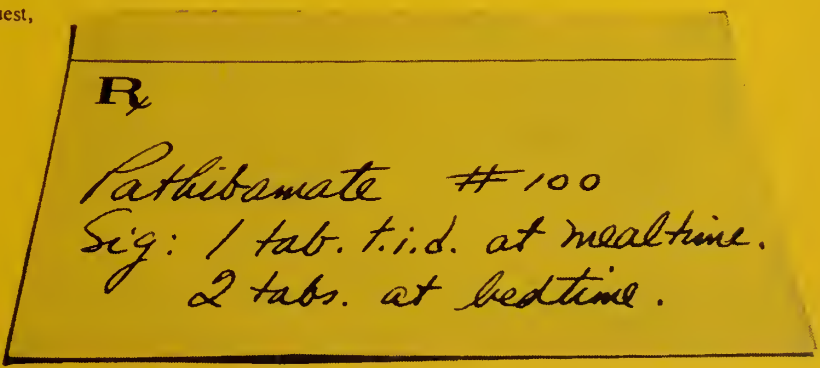

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|---|---|---|---|---|---|---|
| Birth | 10 | 10 | 2 | 3 | 6 | 320 |
| 1 | 12 | 13 | 2½ | 4 | 6 | 390 |
| 2 | 15 | 13 | 3 | 4¹/ | 6 | 480 |
| 3 | 17 | 9 | 3 | 5 | 5 | 520 |
| 4 | 20 | 11 | 3½ | 6 | 5 | 610 |
| 5 | 23 | 11 | 4 | 6½ | 5 | 700 |
| 6 | 26 | 10 | 4 | 7 | 5 | 760 |
| 7 | 28 | 11 | 3 | 7½ | 5 | 740 |
| 8 | 30 | 11 | 2½ | 8 | 5 | 750 |
| 10 | 32 | 9 | 2 | 8 | 5 | 760 |

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| Age Months | Weight Lbs. | Evap. Goat's Milk Oz. | Water Oz. | KARO Tbsp. | Each Feeding Oz. | No. of Feedings in 24 Hrs. | Total Calories |
|---|---|---|---|---|---|---|---|
| Birth | 7 | 6 | 12 | 1 | 3 | 6 | 290 |
| 1 | 8 | 8 | 16 | 2 | 4 | 6 | 395 |
| 2 | 10 | 9 | 14 | 3 | 4½ | 5 | 520 |
| 3 | 12 | 10 | 15 | 3½ | 5 | 5 | 590 |
| 4 | 14 | 12 | 18 | 4 | 6 | 5 | 695 |
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| 6 | 17 | 13 | 22 | 4 | 7 | 5 | 730 |
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| 8 | 19 | 15 | 20 | 2 | 7 | 5 | 690 |
| 10 | 21 | 16 | 16 | 1 | 8 | 4 | 730 |

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| Age Months | Evap. Milk Fluid Oz. | Water Oz. | KARO Tbsp. | Each Feeding Oz. | No. of Feedings in 24 Hrs. | Total Calories |
|---|---|---|---|---|---|---|
| Birth | 6 | 12 | 2 | 3 | 6 | 380 |
| 1 | 8 | 16 | 3 | 4 | 6 | 532 |
| 2 | 9 | 14 | 3 | 4½ | 5 | 576 |
| 3 | 10 | 15 | 3½ | 5 | 4 | 650 |
| 4 | 12 | 18 | 4 | 6 | 5 | 768 |
| 5 | 12 | 21 | 4 | 6½ | 5 | 768 |
| 6 | 13 | 22 | 4 | 7 | 5 | 768 |
| 7 | 14 | 21 | 3 | 7 | 5 | 796 |
| 8 | 15 | 20 | 2 | 7 | 5 | 780 |
| 10 | 16 | 16 | 1 | 8 | 4 | 764 |

### DRIED SOY MILK FORMULAS

| Age Months | Dry Milk | Water Oz. | KARO Tbsp. | Each Feeding Oz. | No. of Feedings in 24 Hrs. | Total Calories |
|---|---|---|---|---|---|---|
| Birth | 6 | 20 | 2 | 3 | 7 | 360 |
| 1 | 8 | 22 | 2 | 4 | 6 | 440 |
| 2 | 9 | 24 | 2½ | 4 | 6 | 510 |
| 3 | 10 | 29 | 3 | 6 | 5 | 580 |
| 4 | 12 | 33 | 3½ | 7 | 5 | 690 |
| 5 | 13 | 33 | 3½ | 7 | 5 | 730 |
| 6 | 14 | 33 | 3½ | 7 | 5 | 740 |
| 7 | 14 | 33 | 2½ | 7 | 5 | 710 |
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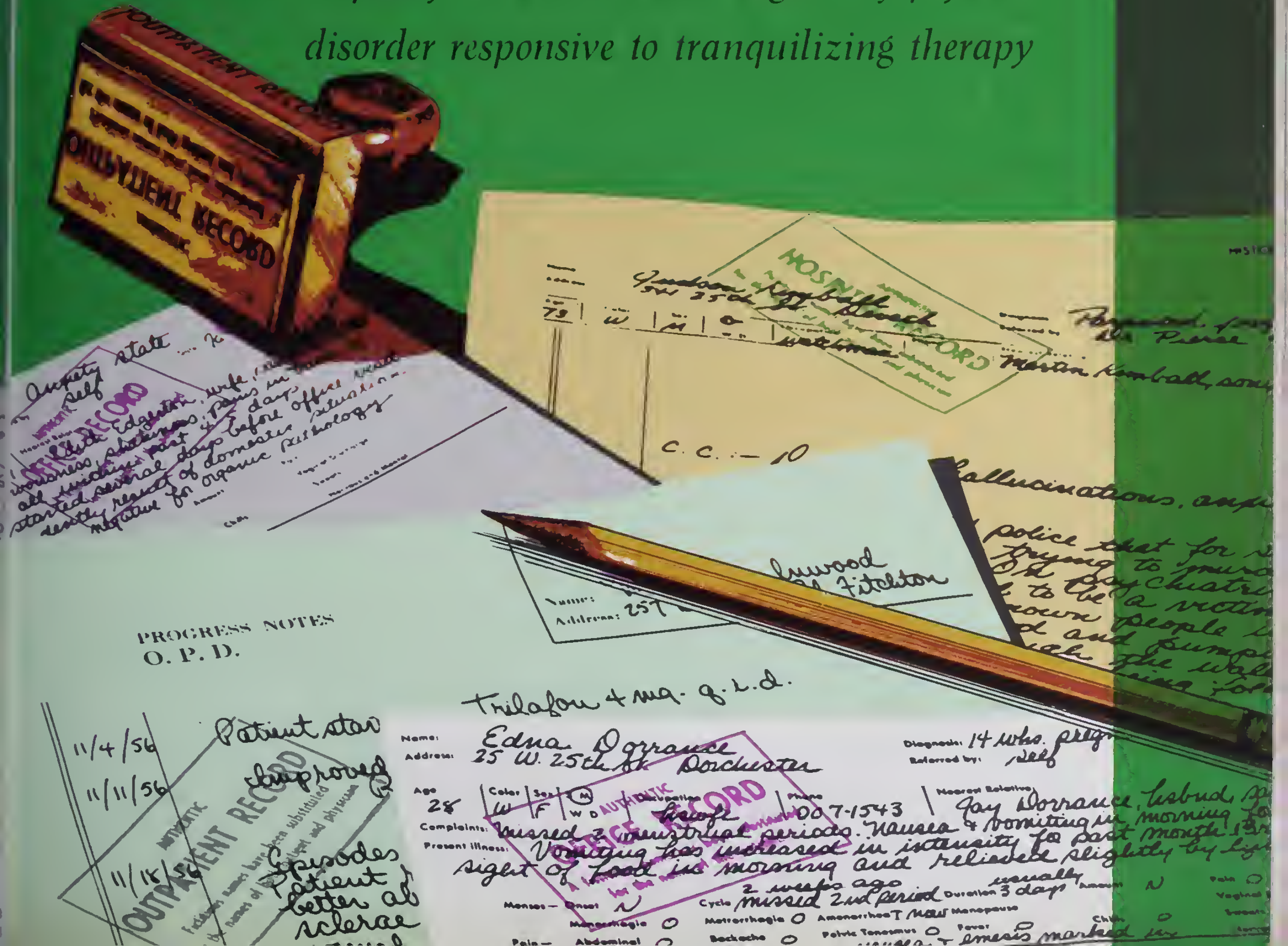

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DELAWARE STATE MEDICAL JOURNAL

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# A BACTERIOLOGICAL EVALUATION OF THE URINE

W. J. Holloway, M.D.* and E. G. Scott, M.T.**

The clinical diagnosis of overt urinary tract infection does not generally require bacteriological confirmation; however, with less obvious symptomatology, reliance must be placed upon cultural study. Since contamination on collection frequency occurs, the presence of a pathogenic microorganism does not necessarily indicate infection. Further studies are needed to evaluate a "positive" urine culture.

Philpot[1] reported a bacteriologic study of 50 voided midstream cultures on normal males and 50 catheterized specimens on normal females. Eighty-two per cent of the specimens from males were positive, and 34 per cent of the cultures from females revealed bacteria. The higher percentage of positive cultures in males suggested that adequate sterilization of the male meatus was difficult. The author concluded that positive cultures on properly collected specimens are not diagnostic of infection, and recommended the use of agar pour plates for further verification. Sanford et al[2] obtained 84 per cent positive cultures in 250 catheterized specimens (male and female) from 164 cases of "obstructive-infectious" uropathy. Seventy-one per cent of the positive cultures had plate counts greater than 1000 colonies per cc. The authors concluded that a plate count of at least 1000 colonies per cc. was required for diagnosis of infection. They also pointed out that the findings of 1-2 organisms per oil immersion field of the stained urinary sediment was suggestive of significant bacteriuria, with or without pyuria. McCrea and Anderson,[3] reporting on 100 cases of urinary tract infection with 100 per cent positive cultures, concluded that urine culture is the most accurate method of diagnosis of urinary infection. Anderson[4] is of the opinion that a plate count greater than 1000 colonies per cc. is significant. Guze and Beeson[5] obtained simultaneous catheterized specimens and specimens from bladder aspiration at laparotomy, from 12 female patients. All specimens obtained by bladder aspiration were sterile, while four of the catheterized specimens were positive. The authors concluded from this study that positive cultures on catheterized specimens are not proof of infection. Again it was recommended that plate counts, solid media and stained sediments be utilized to further confirm a diagnosis of urinary infection.

This study was undertaken to evaluate the colony count proceedure in differentiating between *infected* urines and *contaminated normal* urines. A comparison was made of the type of flora, colony count, and stained urinary sediment between these two types of specimens. An evaluation of the effect of centrifuging urine was done on 84 specimens and an identification of the organisms isolated and their susceptibility to antibiotics was carried out on 200 consecutive positive urine cultures.

## METHOD OF STUDY

Urine specimens were obtained from 50 healthy controls; 25 of these from normal males by midstream culture technique, and 25 from normal females by catheterization. The specimens were cultured within one hour in the following manner: one loopful of *uncentrifuged* urine was inoculated to blood agar and eosin-methylene blue agar plates; one loopful of *urine sediment* (after centrifuging at 2000 r.p.m. for 10 minutes) was inoculated to blood agar and eosin-methylene blue agar plates. These 4 plates were incubated at 37°C for 48 hours, and read as *no growth, scanty growth,* and *heavy growth.* Plate counts were performed using 1 cc. of uncentrifuged urine and trypticase agar, colony counts being done after 48 hours' incubation at 37°C. Gram stains of the urinary sediments were made and examined in all cases, and bacteriological identification was carried out by the usual methods. Antibiotic susceptibility tests were performed with the prepared filter paper discs.

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The 34 infected urine specimens used for comparison were selected at random from routine clinical material. However, no specimen was accepted as an "infected" urine unless the patient had obvious clinical evidence of urinary tract infection. A few specimens were accepted from patients with indwelling catheters in place for a minimum of 6 days. The technique of culturing the infected urines was identical with that described for normal specimens, except that plate counts were done on 1:100 and 1:10,000 dilutions of the uncentrifuged specimen, in order to make a more accurate reading. Proper corrections were then made in estimating colony counts.

## RESULTS

Table I indicates the type of flora isolated from the 84 urine specimens cultured.

TABLE I—Types of Bacterial Flora

| 25 Normal Males | | 25 Normal Females | | 34 Infected Patients | |
|---|---|---|---|---|---|
| Staph. albus | 10* | Staph. albus | 5 | Coliform | 29 |
| Diphtheroids | 6 | Yeast (sapro.) | 2 | Pseudomonas | 5 |
| Enterococcus | 5 | Diphtheroids | 1 | Proteus | 4 |
| Coliform | 4 | Coliform | 1 | Herellea sp. | 3 |
| Micrococcus | 2 | Alpha-hem. strep. | 1 | Beta-hem. strep. | 2 |
| Alpha-hem. strep. | 1 | | | Alca. fecalis | 1 |

*Number of isolations

There is little difference in the type of bacterial flora from the 25 normal male and the 25 normal female controls. However, it appears significant that three times as many isolations were made from the male controls as from the female controls. This further confirms the impression that contamination of urine specimens is more likely to occur when collected by the midstream technique. There is a considerable difference between the type of flora isolated from normal controls and from infected specimens. The coliform group makes up only 13 per cent of the positive isolations from the controls, whereas 65 per cent of the organisms isolated from infected urines were coliforms. *Proteus species* and pseudomonads made up 20 per cent of the isolations from the infected group, but were absent in the normal controls. It is interesting to note that the ubiquitous *Staph. albus* accounted for over 50 per cent of the isolations in the control group, but was not found in the infected group. These results indicate that the type of organism isolated would aid in evaluating a positive culture report.

TABLE II—Culture Results

| Blood agar and EMB | CONTROLS (50) Uncentrifuged | Centrifuged | INFECTED (34) Uncentri fuged | Centrifuged |
|---|---|---|---|---|
| No Growth | 34 | 25 | 2 | 0 |
| Scanty Growth | 14 | 15 | 3 | 0 |
| Heavy Growth | 2 | 10 | 29 | 34 |

In Table II an attempt is made to demonstrate the effect of urine centrifugation on the culture results. Of the 50 control specimens, 16 showed positive cultures before centrifuging, and 25 showed positive cultures after centrifuging. Two of the control urines showed heavy growth on uncentrifuged specimens, while 10 showed heavy growth after centrifuging. It therefore appears that centrifuging normal urine may concentrate the contaminants and result in a false positive report. Two of the infected urines were negative on uncentrifuged specimens, but, as will be indicated later, demonstrated unusually low plate counts.

The results of the colony count procedure were most interesting.

TABLE III—Plate Count Results

| Plate Count | None | $10^2$/cc. | $10^2$-$10^3$/cc. | $10^3$-$10^4$/cc. | $10^4$-$10^6$/cc. | $10^6$/cc. |
|---|---|---|---|---|---|---|
| Normals (50) | 10 | 32 | 6 | 1 | 1 | |
| Infected (34) | | 2 | 0 | 6 | 9 | 17 |
| Stained Urinary Sediment | 10 neg. | 33 neg.<br>1 pos. | 6 neg. | 4 neg.<br>1 pos. | 10 pos. | 17 pos. |

Of the 50 normal urines studied, only 2 showed a colony count above 1000 colonies per cc. Conversely, of the 34 infected urines, only 2 showed a colony count *below* 1000 colonies per cc. This compares favorably with the reports in the literature — that a plate count of 1000 colonies per cc. or greater is required for laboratory confirmation of urinary tract infection. The two cases in this study with counts below 1000 colonies per cc. are considered to be bona-fide exceptions, and are included because of indisputable clinical evidence of urinary tract infection.

The gram-stained urinary sediment was examined in each case, and correlated with the plate count. As noted in Table III, the correlation is excellent. There is only one specimen with a positive stained sediment and plate count below 1000 colonies per cc., and only four negative smears above this level. A stained urinary sediment was considered positive if there were one or more organisms seen per oil immersion field.

As a further part of this study, 200 consecutive positive urine cultures were tabulated as to type of organisms isolated, and their antibiotic susceptibility. Table IV lists the organisms obtained, and their frequency of isolation.

TABLE IV—Organisms Isolated from 200 Consecutive "Positive" Urine Cultures

| Organism | Number of Times Isolated | % of Total Isolations |
|---|---|---|
| Esch. coli | 63 | 31.5% |
| Aerobact. aerogenes | 52 | 26 % |
| Proteus group | 40 | 20 % |
| Pseudomonas sp. | 24 | 12 % |
| Paracolon group | 4 | 2 % |
| Staphlococcus aureus | 5 | 2.5% |
| Staph. albus | 7 | 3.5% |
| Enterococcus | 2 | 1 % |
| Beta-hemolytic streptococcus | 1 | 0.5% |
| Alpha-hemolytic streptococcus | 1 | 0.5% |
| Alcaligenes sp. | 1 | 0.5% |

The susceptibility of the four most commonly isolated gram-negative pathogens to seven antibiotics is depicted in Table V.

TABLE V—Percentage of Sensitive Strains

| Antibiotic | Escherichia coli | Aerobacter aerogenes | Proteus sp. | Pseudomonas sp. |
|---|---|---|---|---|
| | (63 strains) | (52 strains) | (40 strains) | (24 strains) |
| Tetracycline* | 87% | 23% | 0 | 0 |
| Chloramphenicol | 100% | 48% | 75% | 0 |
| Nitrofurantoin | 100% | 40% | 65% | 0 |
| Polymyxin | 83% | 58% | 0 | 100% |
| Neomycin | 63% | 71% | 33% | 21% |
| Streptomycin | 76% | 15% | 83% | 17% |
| Penicillin | 0 | 0 | 15% | 0 |

*B-B-L Sensitivity Discs were used in this study, in the following concentrations:
tetracycline and chloramphenicol—5 mcgs.
furadantin—100 mcgs.
polymyxin B and neomycin—30 mcgs.
dihydrostreptomycin—10 mcgs.
penicillin—2 units.

Ten representatives strains of each group were also tested by the test tube dilution technique. In general, the correlation between these two methods was quite good. By the test tube method a relative sensitivity of the pseudomonas group to tetracycline was noted (average minimal inhibitory concentration 12.5 mcg. per cc.), which was not detected by the 5 mcg. tetracycline disc used in this study.

It will be noted that the 63 strains of *E. coli* were relatively susceptible to all of the antibiotics tested, except penicillin. All of the strains were sensitive to chloramphenicol and nitrofurantoin. The 52 strains of *Aerobacter aerogenes* were more resistant, neomycin and polymyxin being the most effective *in vitro*, being active against 48 per cent and 40 per cent respectively, of the organisms isolated.

All of the 40 strains of *Proteus sp.* isolated were resistant to tetracycline. Streptomycin, chloramphenicol and nitrofurantoin were effective, however, against a considerable percentage of these strains. Six of the 40 strains of proteus were sensitive to penicillin by the disc technique.

The pseudomonads were resistant to all antibiotics tested, except polymyxin, with a few strains sensitive to neomycin and streptomycin.

## CONCLUSIONS

1. The bacterial flora of infected urine specimens differs considerably from that of normal controls.

2. A plate count of greater than 1000 colonies per cc. of freshly collected urine is essential in confirming a diagnosis of urinary infection. It is recommended that this procedure be made a part of routine urine culture technique.

3. The demonstration of a significant number of bacteria in the stained sediment, with or without pus cells, correlates well with the presence of infection.

4. Centrifugation of urine prior to culturing is not necessary, and may well concentrate contaminants in normal urine.

5. In selecting the antibiotic of choice for treating urinary pathogens, *in vitro* testing is essential. Discing proceedures are generally satisfactory, although occasionally the test tube dilution technique is indicated.

The authors are indebted to Miss Audrey Ellis and Miss Ellen Corcoran for technical assistance in this study.

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# THE DELAWARE HOSPITAL HOME CARE PROGRAM

## I. DEVELOPMENT AND DEFINITION OF HOME CARE

Samuel Elbert, M.D.*

The Delaware Hospital began the Home Care Program on April 1, 1956, to determine the feasibility of such a program in the Wilmington area. The first year of the program was underwritten by the Ford Foundation.

Home Care is a program which brings to the home of patients who would ordinarily require hospitalization the necessary hospital facilities and care rendered by a team of physician, nurse and social worker. Other ancillary services are provided when medically indicated. In short, Home Care is the provision of comprehensive medical care within the home.

The philosophy of Home Care is not new. As early as 1796 the Boston Dispensary was established to provide medical care to the poor in their homes. This program is still in existence. In 1875 the Boston University School of Medicine instituted a Home Care program to provide training and experience for senior medical students. In 1930 a similar program was established by the Medical School of the University of Vermont.

Agencies other than medical institutions have been interested in Home Care; in 1933 the Chicago Department of Welfare instituted a hospital and home program.

Since 1940 there has been a marked increase in the number and variety of agencies developing similar programs. This is a result of the recognition of the problems of our aging population and the increase in chronic illness. The greatest stimulus to Home Care was the demonstration program established in 1947 at New York City's Montefiore Hospital. This group showed that, under given circumstances, the required services could be provided at home for patients with chronic illness at less cost than in hospitals.

There had been discussion of the possibilities of Home Care in the Wilmington area for a number of years prior to the actual establishment of the program. However, it received real support in February, 1955, when the Planning Committee of the Delaware Hospital recommended that immediate consideration be given to a trial program of Home Care. The Delaware Hospital's Medical Board approved the principle of Home Care and referred it to the County and State Medical Societies who concurred. An advisory committee of the Welfare Council, composed of representatives from Health and Welfare agencies of the community met five times to deliniate the role of the various agencies who would participate in the program. The hospital's Committee on Home Care, composed of physicians, is immediately responsible for the operation of the program and recommends policy to the Medical Board.

The program is for medically indigent patients referred from the wards and outpatient clinics of the Hospital. The patient is accepted only after evaluation by the Home Care physician and the social worker. The doctor appraises his medical needs and the feasibility of treating such needs in his home. Then the social worker evaluates the emotional climate of his family and the suitability of the home as to the factors of safety, ease of care, and adequate help to attend the personal needs of the patient.

Rejection by either disqualifies the applicant. In addition, and most important, both the patient and his family must want to go on Home Care.

---

* Chairman of the Delaware Hospital Home Care Committee

The patient need not be completely bedfast but must be physically unable to come to the clinic. Patients who are accepted are considered to be transferred from the ward or clinics to the Home Care Service. Each day of Home Care service is counted like a hospital patient day. Should the patient's illness become acute and hospitalization be required, he is transferred to the hospital and treatment is continued.

*Home Care Team:* The two Home Care physicians were selected from the younger members of the hospital's attending staff. Both have recently completed resident training in internal medicine. Each acts as a captain of the Home Care team, directing the care of the patient as part of the same staff organization that exists for inpatients. Thus, able consultants in every field are immediately available through the Hospital's ward services when requested by the Home Care physician.

To prevent duplication, the hospital uses available resources in the community. This requires the closest cooperation between all participating agencies. The social worker acts as the coordinator for the hospital. She advises the agencies of the needs of the patient and follows through, working with the agencies and the patient, to see that his needs are met. A Home Care secretary assists her with the clerical and statistical work of the program.

The Visiting Nurse Association (VNA) provides bedside care and teaches nursing techniques to the patient. The VNA, which has always provided care in the home, has played an important part in the program. A VNA supervisor is assigned as coordinator for the nurses. Physical therapy is provided by the VNA. The Curative Workshop provides occupational therapy. The Red Cross provides transportation and equipment. The Cancer Society assists cancer patients with housekeeping help and equipment when requested. Plans have also been made for the Family Society to provide homemaker service if needed.

Other groups which have assisted include The Delaware Heart Association and five different Lions Clubs which provided everything from eye glasses (in order that a diabetic patient might be able to give himself insulin) to a collapsible wheelchair. Also, The Needlework Guild, the Sunshine Society, and the Soroptimist Club have been very helpful. There was even a pair of white socks from an "anonymous giver."

With the number of personnel and agencies involved, communications can be a problem. This has been avoided by the use of two tools; a standard referral form and weekly group conferences.

The referral form permits the transmission of the physician's orders in writing and the return of a written report, thus following the same professional routine as in the hospital.

Perhaps most important are the weekly group conferences which all members attend. The visiting nurse, the occupational therapist, and other team members present their observations and recommendations to the physician. He in turn presents his views and develops the course of treatment to be followed. These conferences serve to keep each member informed of the total care being rendered and delineate the role of each. Thus each team member learns of the contribution of his fellows and develops a hitherto unknown appreciation of those contributions.

# THE DELAWARE HOSPITAL HOME CARE PROGRAM

## II. CLINICAL ASPECTS

B. Z. PAULSHOCK, M.D.* AND A. E. BACON, M.D.*

After one year's experience with the Delaware Hospital's Home Care Program it has become possible to define the services provided in terms of the types of ill people who may be cared for at home, utilizing the combined services available to the Home Care Department. These categories will be outlined and several representative case histories presented.

*First, there are the patients who can go home from the hospital ward services sooner because of the program.*

Case 1—This patient is a 37 year old woman with hypertensive cardiovascular disease who has been followed in our Medical Outpatient Department and Medical Ward Services for several years with congestive heart failure and renal damage. Her average blood pressure is 240/160 mm. Hg. In November 1956 she was admitted to the ward service for a total of five weeks because of a cerebral vascular accident thought to be an embolic episode. During hospitalization her hemiparesis cleared but she remained unable to swallow. She was discharged to the Home Care Program with a nasal gastric feeding tube in place. The Delaware Hospital provided her tube feeding, a blenderized low sodium general diet which was beyond the family's ability to prepare, even if they were provided with a blender. After about one week at home, her feeding tube clogged and she experimented with drinking her diet around the tube which she was able to do. The tube was removed and she was followed for a few days longer to make certain she would be able to eat. After a total of three weeks on the Home Care Program, she was discharged to the Outpatient Department.

Case 2 is a forty year old woman who has been followed for many years in numerous clinics of the Delaware Hospital. In January and February of 1957, she had a three week hospitalization on the Gynecology Service and had a urethral suspension. Post operatively she had a hematoma of her abdominal wound with subsequent infection. This wound necessitated iodoform packing which had to be done by a physician. Since she was ambulatory, outpatient visits would have been sufficient. She had, however, idiopathic epilepsy and an anxious personality with a predilection for convulsive seizures in the hospital elevators and clinics. She was therefore treated on the Home Care Program for two weeks, during which time her wound was dressed every other day. At the end of this period, she was re-hospitalized for five days. She was then readmitted to the Home Care Program for an additional two weeks, during which time her wound healed. The patient was then discharged to the Outpatient Department.

*Second, the program has operated as a service for patients with chronic disease in preventing frequent hospital readmissions.*

Cases 3 and 4 are both patients with chronic congestive failure due to arteriosclerotic heart disease; one is a sixty year old man and the other a fifty-seven year old woman.

Table I summarizes the number of days of hospital care and admissions to the Ward Medical Service in the year immediately preceding and the first year of the Home Care Program. Shortly after this table was prepared patient No. 3 was readmitted to the hospital and died of his heart disease.

---

* Physician for the Delaware Hospital Home Care Program

TABLE I

Comparison of Time Spent in the Hospital The Year Prior to and the First Year of the Home Care Program

| | Year Preceding Home Care Program | | Year on Home Care Program | |
|---|---|---|---|---|
| | Admissions | Total Days | Admissions | Total Days |
| No. 3 | 4 | 98 | 1 | 24 |
| No. 4 | 4 | 73 | 1 | 15 |

*Third, there have been patients for whom hospital admissions have been completely prevented, the patients being referred to the Home Care Program directly from the Outpatient Department.*

Case 5 is a sixty year old woman who had a supracondylar amputation of her right leg in October of 1956. The next month she was readmitted to the hospital for two weeks because of cellulitis in the stump. In January 1957, she was referred to the Home Care Program from the Surgical Outpatient Department because of an early recurrent cellulitis of her stump. She was managed at home with antibiotic therapy, soaks, close observation, and attention to her diabetes. After two and a half weeks, she was discharged to the Outpatient Department in an improved condition.

Case 6 is a 69 year old woman referred to the Home Care Program from the Metabolic Clinic. She had been brought to the hospital by her daughter because of recent weight loss and increasing disorientation. Her urine sugar tests at that time were strongly positive and she was referred to the Home Care Program for management of her diabetes. Other medical problems included hemiparesis of six months' duration. She was unable to walk. A diabetic management program was established at home with insulin being given by her daughter under the supervision of a Visiting Nurse. In addition, the patient was given physical therapy to her weak arm and leg. She remained with the Home Care Program for five weeks. She was then discharged to the Metabolic Clinic as she no longer needed to be seen at frequent intervals.

*The fourth category of patients are those with chronic illness who would normally require institutional care, usually custodial, but who reject such hospitalization as they strongly prefer home care.*

Case 7 is a 74 year old man who, in December of 1955, had a cerebral vascular accident which resulted in left hemiparesis. He was invalided at home until June of 1956 when his private physician referred him to the Ward Medical Service because of urinary incontinence, increasing disorientation, and anorexia. The family physician referred the patient's wife, also 72 years old, to the Delaware Hospital Social Service Department and a recommendation that the patient be hospitalized at the Governor Bacon Health Center was made and refused. The Home Care Program was then suggested by the family doctor and accepted by the patient's wife. This patient has been with the Home Care Program since June 1956 and has done very well. He is still bedfast, with the exception of several hours a day which he spends in a chair. The catheter is no longer required. He receives physical therapy to his arm and leg weekly from the Visiting Nurse Association physical therapist. A hospital bed has been provided by the Home Care Service. Regular visits by the Visiting Nurse and the Home Care Physician give the wife sufficient confidence to manage him at home.

Case 8 was a woman in her mid-forties who was diagnosed carcinoma of the cervix, stage III in June 1956 and who was treated with x-ray therapy followed by radium in October 1956. Her out-patient follow-up was poor, partly due to her rapid downhill course which made transporting her to clinic difficult and partly because she chose deliberately to avoid medical therapy for a period of time. In January 1957 she was at home and in poor condition when a Home Care Program referral was made. At the time of the first physician visit, the home situation was found to be very poor. The patient was in extreme pain, with a partial bowel obstruction and moderate dehydration. Daily enemas by the Visiting Nurse relieved her of the obstruction. Her pain was relieved by sedative medication and the provision of a hospital bed. An indwelling catheter was inserted, simplifying the family nursing problems. Additional linens were obtained. These provisions permitted a 14 year old daughter, who had been kept home to do the laundry, to return to school. The patient remained fairly comfortable for three weeks until her bowel became completely obstructed and she was hospitalized for two weeks. In the hospital her obstruction was relieved by tube drainage. She was transferred to the Home Care Program for the last three weeks of her life. The family was able to keep a crude intake-output record for help in the management of the patient. Hydration was maintained by daily clysis therapy given at home. During this period, the patient developed extreme inanition and asthenia but remained comfortable. Because of the development of large decubiti, readmission to the hospital was considered but the patient refused and expired quietly at home.

*The fifth and last type is a special category consisting of patients who represent a combination of factors and who are severely disabled. The Home Care Program is an experimental attempt to solve their problem of medical care in the home.*

Case 9 is a 17 year old boy who had a fracture-dislocation of the cervical vertebrae in August 1955. This resulted in quadri-plegia and paralysis of the diaphragm and intercostal muscles. His illness was characterized by changes accompanying the profound alteration of physiology. He had a transient episode of diabetes insipidus and multiple infections of the respiratory and renal systems. Demineralization led to renal calculi formation. Breathing was done only with accessory muscles of respiration and he was forced to rely on a tank type respirator most of the day. Several skin grafting procedures were done. He remained on the Neurosurgical Service for sixteen months, and with the cooperation of the General Surgical Service, Plastic Surgical Service, Medical and Urologic Services, his condition became fairly stable. During this period his parents spent a great deal of time in the hospital and became familiar with his routine care.

In December, his parents requested that he be admitted to the Home Care Program. Fairly elaborate planning was done, including strengthening a portion of the floor in the home, transportation of an iron-lung to the home, establishing emergency electrical power priority as well as volunteers from the Newport Fire Company who would manually operate the lung in the event of a power failure. The respirator was also equipped with an alarm system wired for sudden pressure changes.

A practical nurse was employed on an eight hour shift to be in the home when the patient's father was at work. This nurse and the Visiting Nurses were instructed in his routine for a period of three days prior to transfer to his home.

On December 19, 1956 he was admitted to the Home Care Program. His care was approximately the same as in the hospital. A Visiting Nurse visited daily to assist in the changing of dressings and linen. The plan was satisfactory. After three weeks, however, the patient developed cycles of respiratory and renal infections. These were managed in a fashion similar to hospital care, including the administration of parenteral fluids for as long as a week as his only source of fluid intake. After seven weeks at home, the patient was readmitted to the hospital on February 11, 1957

On March 3, 1957 the patient was readmitted to the Home Care Program. Because of the increased experience of the family, it was no longer necessary to employ a full time practical nurse. The patient has been home continuously since with his parents handling his care. A Visiting Nurse assists in his morning care six days a week. He has had no significant illness, being febrile a total of only 48 hours in this period. His catheter is changed at 10 day intervals and there is continued healing of decubiti and donor sites. He receives antibiotics only when indicated.

Case 10 is a woman in her early forties who has a Delaware Hospital record of three volumes. Her illness began with an automobile accident in 1954 in which her spinal cord was transected. From May 1954 to January 1955 she was in the Delaware Hospital, after which she was transferred to the University of Pennsylvania Hospital where she remained for most of the next year. In April 1956 she was transferred to the Delaware Hospital where she spent six months, during which time she had a staphylococcal bacteremia. In October 1956 she was accepted by the Home Care Program. She remained at home for one month and was then returned to the hospital for previously scheduled surgery of a sacral decubitus. After one month in the hospital she returned to her home but re-admission was necessitated in two weeks because of a recurrent staphylococcal bacteremia. She remained in the hospital for four months during which time further surgery of her hip was performed to prevent the formation of new decubiti. Despite this, a new sacral decubitus developed but she refused further surgery. From April 23rd to the present time she has been on the Home Care Program. She occupies a Stryker frame at home and her family has become very adept in her nursing care. A nurse visits her daily for general care and care of her catheter. The occupational therapist visits twice weekly for recreational therapy. She is extremely happy to be home and it is planned to keep her at home on the Stryker frame indefinitely.

SUMMARY: A classification of the types of patients cared for on the Home Care Program has been presented, with representative case histories. These patients can be divided into five categories:

1. Patients who are discharged from the hospital earlier and continue to receive hospital follow up on the Home Care Program.
2. Patients with chronic disease for whom the Home Care Program serves as a preventive program decreasing the frequency of hospital readmissions.
3. Patients with acute medical problems, who can be managed at home, thereby preventing a hospital admission.
4. Patients with chronic illness, who require institutional care, usually custodial, but who prefer to remain at home.
5. Patients who are severally disabled for whom the Home Care Program is an experimental attempt to solve the patient's medical problems in the home.

# THE DELAWARE HOSPITAL HOME CARE PROGRAM

## III. THE ADMINISTRATION ASPECTS

A. W. Speth*

During the first year sixty-three individuals were cared for on the Home Care Program. The following is the statistical and cost discussion of the program.

*Referrals:* There were 109 referrals to the program from physicians. Table I shows the breakdown by service. As would be expected the Medical Service had the largest number.

TABLE I

Referrals by Service to the Home Care Program

| Service | Total | Total Accepted | Total Rejected |
|---|---|---|---|
| Medical | 45 | 34 | 11 |
| Surgical | 29 | 21 | 8 |
| GYN-OB | 13 | 10 | 3 |
| Pediatric | 11 | 7 | 4 |
| Neuro-Surgical | 6 | 4 | 2 |
| Orthopedic | 4 | 2 | 2 |
| Urology | 1 | 0 | 1 |
| Total Referrals | 109 | 78 | 31 |
| Total Individuals | 90 | 63 | 31 |

Twenty-one of the referrals were from the Out-patient Department, the rest were from ward service. Eighty percent of the patients had been treated in the clinics of the hospital prior to acceptance on the program for periods varying from five months to twenty-one years.

*Rejection:* Approximately thirty percent of the referrals were rejected. The Home Care physicians rejected nineteen patients; thirteen were physically able to attend the Out-Patient Department, four were too ill for home care, and two expired while their referrals were pending. The Social Worker rejected twelve patients; seven who had a private physician or were not medically indigent, and five because the home was not suitable for care or the family refused the program.

*Income:* Thirty of the sixty-three patients were Department of Public Welfare clients. Six had no income and were pending welfare. Fourteen had pensions of less than $80.00 a month. One was a ward of the Catholic Welfare. The remaining twelve patients were members of family units (two to seven persons) with incomes of $130 to $270 a month.

*Hospital charges prior to home care:* For the patients referred from the hospital there was a total of $46,210 in charges for in-patient hospitalization. The hospital wrote off $40,782 to free service, an average of $669 per patient. This figure excludes two paraplegics whose total bill well exceeds the above total and would inflate the average.

*Age, Sex and Mobility of Patients:* The age and sex of patients is noted in Table II. As would be expected the age groups forty-five and above included the majority of patients.

TABLE II

Age and Sex of Home Care Patients

|  | Under 25 | 25-44 | 45-64 | 65+ | Total |
|---|---|---|---|---|---|
| Male | 5 | 0 | 5 | 12 | 22 |
| Female | 4 | 5 | 22 | 10 | 41 |
|  | 9 | 5 | 27 | 22 | 63 |

Of the sixty-three patients twenty-seven were completely bedridden, twenty were completely confined to their homes and sixteen were ambulatory. However, five of the latter were children with contagious disease.

*Diagnosis:* Many patients had multiple diagnoses. Several were readmitted for other than the original reason. For the purposes of this report, only the primary diagnosis on the first admission was considered. The two largest groups were cardiovascular (49.2%) and malignancy (19.1%).

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* Administrative Assistant, Delaware Hospital

TABLE III

Diagnosis of Home Care Program Patients

| | No. | Percent |
|---|---|---|
| Cardiovascular | | |
| Cerebrovascular accidents | 11 | |
| Myocardial infarction | 4 | |
| Congestive failure | 7 | |
| Arteriosclerosis | 3 | |
| Peripheral vascular disease (includes 3 amputees) | 6 | |
| Total cardiovascular | 31 | 49.2% |
| Malignant neoplasms of various sites | 12 | 19.1 |
| Pertussis | 5 | 8.0 |
| Transverse cervical myelopathy | 3 | 4.7 |
| Chronic pulmonary disease | 3 | 4.7 |
| Post operative wound infection | 3 | 4.7 |
| Peptic ulcer | 2 | 3.2 |
| Fracture calcani | 1 | 1.6 |
| Premature rupture of membrane | 1 | 1.6 |
| Acute glomerulonephritis | 1 | 1.6 |
| Diabetes mellitus (regulation) | 1 | 1.6 |
| Grand Total | 63 | 100.0% |

*Extent of Service:* During the year sixty-three individual patients accumulated a total of 3,494 patient days. There were 1,846 visits to the home by various members of the team, divided as follows:

| | No. of Visits |
|---|---|
| Physician | 663 |
| Visiting Nurse | 765 |
| Physical Therapist | 153 |
| Occupational Therapist | 106 |
| Social Worker | 159 |
| | 1,846 |

There was a total of thirty-two hours of housekeeping service provided by the Cancer Society. Where laboratory studies were indicated, specimens were obtained in the home and brought to the hospital by a laboratory technician. A practical nurse was provided in one home and gave a total of 425 hours of service.

*Cost:* The direct cost to the hospital for salaries of personnel, services purchased from Visiting Nurses, Physical Therapist and Occupational Therapist, drugs and other patient equipment totaled $14,353 or $4.11 per patient day. Adding estimated overhead and the cost of office equipment purchased to start the program brings the total to $19,251 or a cost per day of $5.51. This compares with an average cost of $32.32 a day in the hospital. The Home Care Program cost does not include equipment loaned from other agencies such as beds, bedpans and some dressings. However, this would not increase the cost significantly so it is safe to say that cost per day is one fifth that of a hospital day. The question may arise whether a home care day can be compared to a hospital day. Study of our sixty-three patients indicated seventy percent of their home care patient days would have been spent in hospital if it were not for our ability to care for them at home. Based on this estimate, to build the hospital beds to care for our case load for the first year would have required a capital expenditure of approximately $200,000.

*Other factors:* The psychological advantage in avoiding the disruption in family life caused by separation is clearly evident. This, of course, is a variable factor depending on the ability of both individual and family to adjust to the stress of the illness. The morale of both the family and the patient has improved in all but one of the cases transferred to the Home Care Program. This was true even in terminal cases. Certain patients do much better and are happier in their homes than they would be in the hospital.

Many chronically ill patients after long periods in the hospital yearn for the home despite optimal hospital environment. There is a time when further care in the hospital emphasizes chronicity of the illness. The home becomes a symbol of familarity and security to the patient. In the hospital he often feels that he loses his individuality because of the hospital routine. In the home he is the dominant figure.

Thus, assuming proper selection, there are stages in illness—especially long term or terminal illness—where psychological factors make home care more desirable than hospitalization. Not only are the high initial costs of construction eliminated entirely, but operating costs are reduced by eighty percent.

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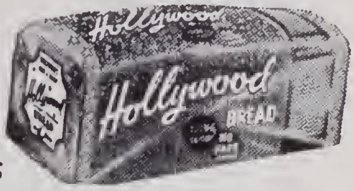

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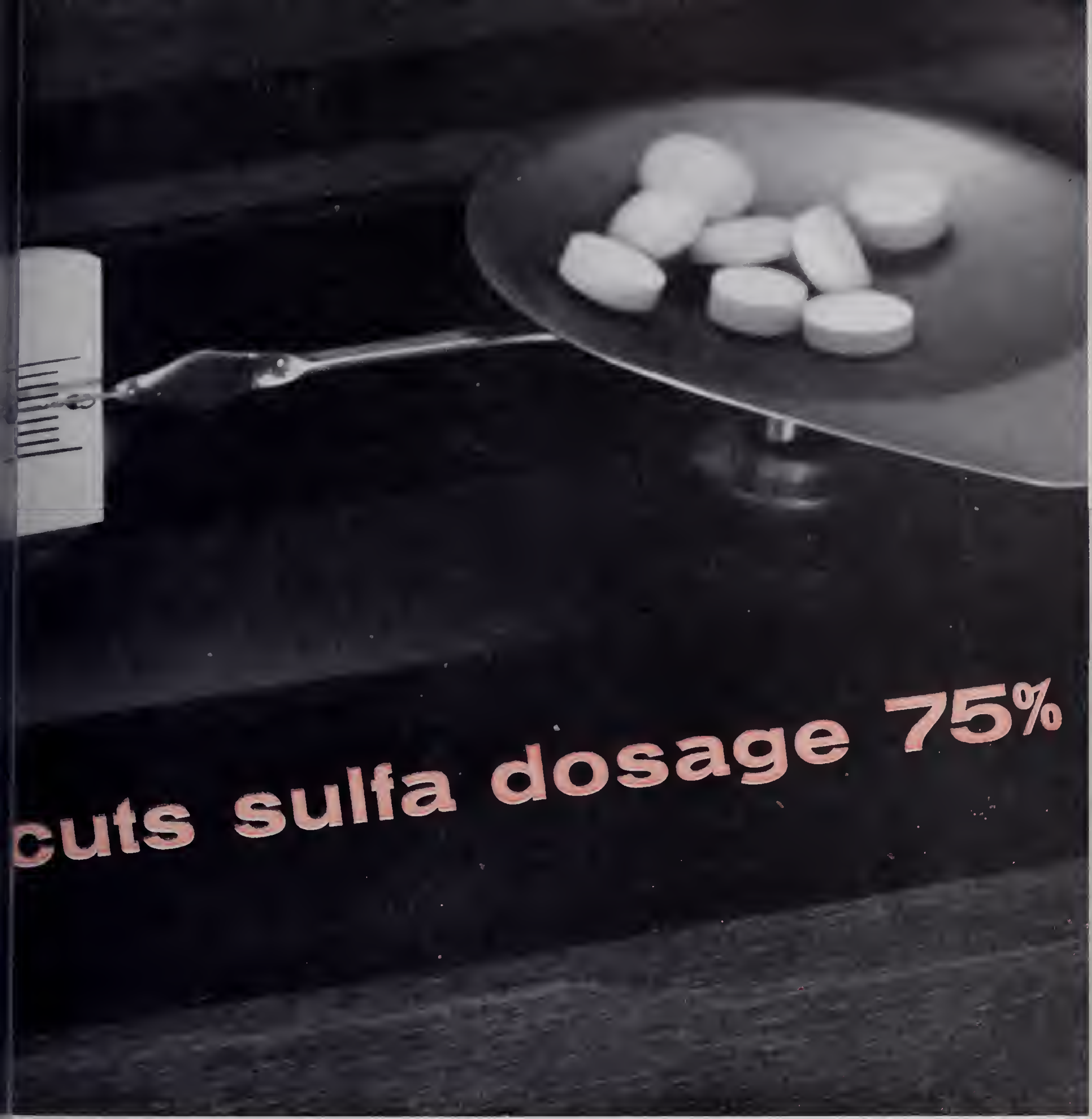

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# ELECTROCARDIOGRAPHIC CHANGES SIMULATING ORGANIC HEART DISEASE

## CASE REPORT*

R. D. PULLEN, M.D., J. W. BARNHART, M.D. AND J. R. DURHAM, M.D.

Abnormalities of the ST-T complex of the electrocardiogram (ECG) due to factors other than organic heart disease have been the subject of numerous reports in the recent literature. These ST-T complex changes have been found in a variety of clinical states, of which the following are the most common: neurocirculatory asthenia, persistance of juvenile pattern, postprandial state, cerebral accident, post-tachycardial syndrome, acute anxiety, electrolyte disturbance, and hyperventilation syndrome.[1,2,3] It has been estimated that approximately 10% of healthy adult Negro males may show the juvenile pattern, with transient or persistent T wave negativity in the precordial leads. The incidence is somewhat less in Caucasian adults. The importance of recognizing the frequency of extracardiac T wave abnormality is obvious. Frequently, pericarditis or coronary disease have erroneously been ascribed to these benign changes.

In the last few years, the hyperventilation syndrome has been assigned a major role in the production of abnormal tracings. This syndrome can be a clear-cut, well defined entity but frequently presents itself as a vague perplexing dilemma. Lewis[4] has described the symptomatology and pathophysiology of the various aspects of this syndrome. The acute episode with gross hyperpnea leading to frank tetany is easily recognized and of relative infrequency. However, numerous equivalent forms occur which are less well understood. Lewis has outlined its various manifestations as follows:

1. Central neurovascular: faintness, dizziness, unsteadiness, impairment of concentration and memory, feelings of unreality and, infrequently, complete loss of consciousness.
2. Peripheral neurovascular: numbness, tingling, and coldness of the distal extremities, especially the hands, and often involving the face and perioral regions.
3. Muscular: variable, usually diffuse, muscular spasm and myalgia, coarse tremors, twitching movements and, uncommonly, carpopedal spasm with generalized tetany.
4. Respiratory: shortness of breath, tightness in and about the chest and, less expressive but equally significant, sighing respirations and excessive yawning.
5. Cardiac: palpitation, tachycardia, "skipped beats," and twinges about or lateral to the nipples, or as a more persistent, dull, aching pressure over the lower anterior thorax.
6. Gastrointestinal: marked mouth dryness, dysphagia, and distressing abdominal bloating, belching, and flatulence.
7. Psychic: variable degrees of overt anxiety, tension, and apprehension except in certain hysterical subjects, who display an inappropriate pseudocalmness.
8. General: easy fatigability, diffuse weakness, insomnia, and chronic exhaustion.

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* From the Dept. of Cardiology, Delaware Hospital

Wasserburger and colleagues[5] report the effects of hyperventilation on the normal adult electrocardiogram with methods of correcting and preventing the changes. In 37 of 350 normal adult males, T wave inversion was observed in two or more precordial leads, following brief hyperventilation. All were found, on psychiatric evaluation, to be "tense, immature, and emotionally disturbed." Respiratory alkalosis was excluded as a cause by finding the presence of the pattern during inhalation of a high $CO_2$ content mixture. Probanthine 15 mg. intravenously completely blocked the ECG effects in 8 of 11 patients so tested. Likewise, 10 Gm. of potassium salts, orally, blocked the ECG changes in all of 6 patients studied. It is postulated that the ECG changes are vagogenic, and support for this is the prevention of changes by probanthine and potassium. The following case illustrates the confusing ECG changes which may be seen.

## Case Report

A 35 year old white single woman was admitted to the hospital on July 22, 1956 because of dizzy spells which developed the afternoon of admission. These were relieved by reclining. However, the dizziness returned after a few minutes, accompanied by nausea and palpitation. These symptoms then persisted in spite of lying down but were temporarily relieved by cold compresses to her head and inhalation of spirits of ammonia. Later in the afternoon they returned with increasing severity, culminating in her admission.

Her past history was unremarkable, there having been no such episodes previously. There was no history of cardiac disease or hypertension.

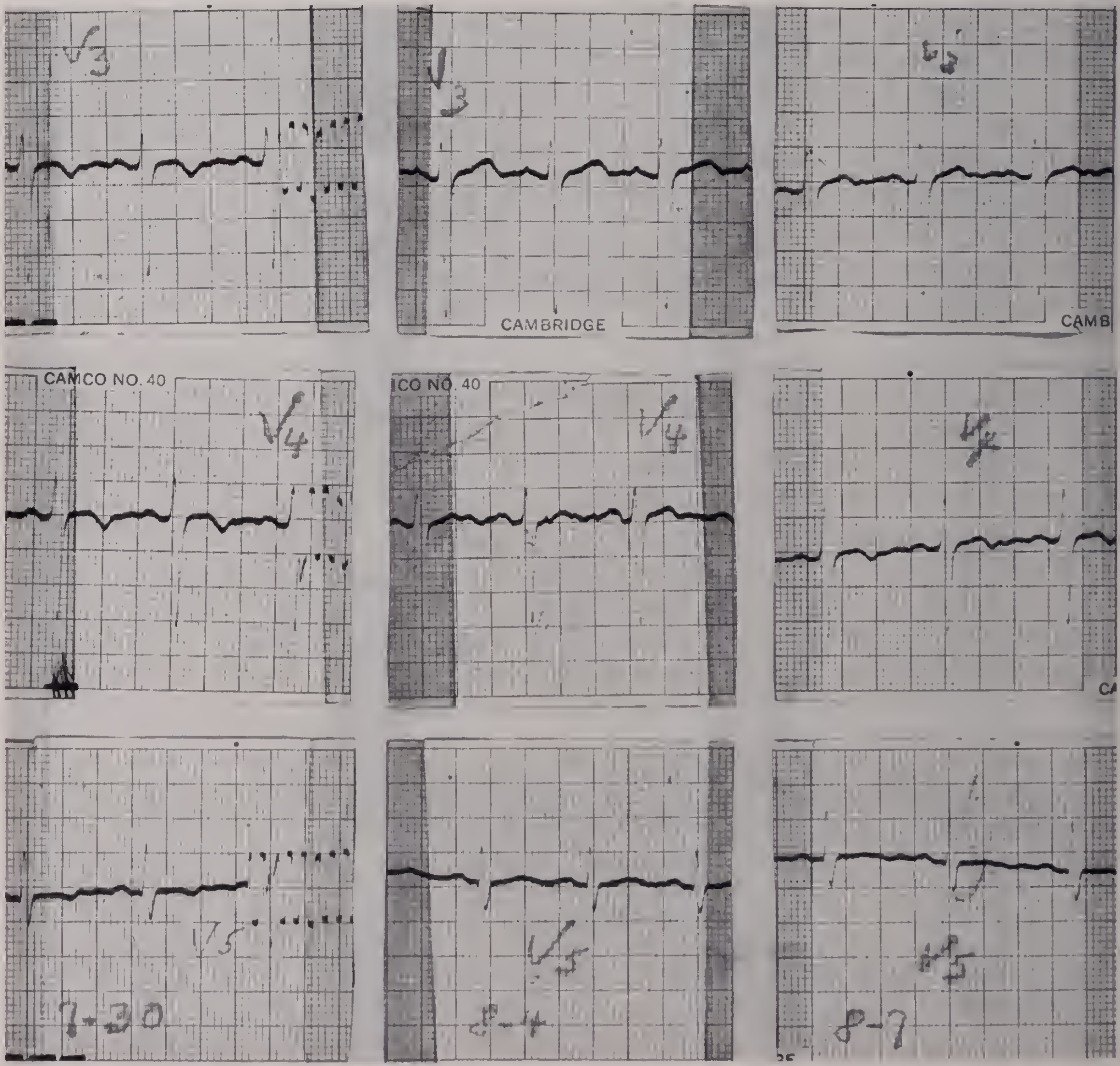

Figure 1

She worked as a chemical analyst and had always been found well on annual physical examinations. She was known to be quiet and withdrawn socially and of a rather dependent personality structure.

Physical examination revealed her blood pressure to be 102/62, pulse 92, respirations 16, and temperature 98.4° F. She was well developed and appeared to be resting comfortably. No cyanosis or flushing was noted. There was no lymphadenopathy. The lungs were clear to percussion and auscultation. The cardiac apex was in the fifth intercostal space at the left midclavicular line. The heart sounds were of good quality and there were no murmurs or thrills. Abdominal examination was normal; neurological examination was unremarkable. Her extremities were normal with good pedal pulses.

The hemoglobin was 13.0 Gm., and the white blood count 6,000 with 51% segmented polys, 3% bands, 32% lymphocytes, 10% monocytes, 2% eosinophiles, and 2% basophiles. Her blood serology (VDRL) was non-reactive. The sedimentation was 20 mm./1 hour (Cutler). The urinalysis was normal. A two hour post-prandial blood sugar was 126 mgs.%. The blood urea nitrogen was 8 mg.%, and the serum cholesterol was 264 mgs.%. A chest x-ray showed normal heart and lungs.

The patient continued to have the same symptoms intermittently and during these episodes was found to have a tachycardia ranging from 100 to 144 beats per minute. Within a few minutes, the pulse rate would decrease. She would first note flushing, followed in turn by hyperpnea, and palpitation. Hypertension did not develop during these episodes. Careful questioning did not reveal any overt reason for anxiety or tension, and the attacks continued in spite of meprobamate and quinidine therapy.

Figure 1 shows leads V-3, V-4, and V-5 of the baseline electrocardiogram with ST-T complex changes suggesting hypokalemia, constrictive pericarditis, or non-specific abnormality. Attention is called to the biphasic T wave in V-3 and negative T in V-4. Beginning on August 2nd, the patient was given 1.0 Gm. potassium chloride four times daily and 15 mg. probanthine every eight hours; both drugs were given by mouth. On August 4th, the ECG (figure 1) showed erection of the T waves in leads V-3 and V-4 with disappearance of the notched T waves in leads V-3 and V-5. High V-4 and V-6 leads (not shown) also showed upright T waves. The administration of potassium chloride and probanthine was discontinued on August 4th.

An ECG on August 7th (figure 1) showed a similar pattern to that on admission. On August 6th, a serum potassium was 4.4 MEg./l. and a serum calcium was 10.4 mg.%.

The nature of the patient's symptoms was explained to her. She was discharged from the hospital, asymptomatic.

The case illustrates the marked ECG changes that can be seen in the absence of organic disease. In Wasserburger's report, ECG changes could be induced by a brief period of hyperventilation. While this could not be demonstrated in our case, we believe the abnormal T waves are related to the same syndrome and are simply an ECG expression of an anxiety state, most probably mediated through a neural mechanism.

## SUMMARY AND CONCLUSION

1. A brief review of the literature on functional T wave changes is presented, with particular reference to the hyperventilation syndrome.

2. A case exemplifying these ECG changes is reported; their correction is illustrated.

3. The importance of considering this syndrome and its related variants in the interpretation of electrocardiograms is stressed.

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# FETAL MORTALITY IN PREGNANT DIABETICS

## A Clinical Note

Lewis B. Flinn, M.D.*

Before the discovery of insulin, it was difficult for diabetic women to conceive. Among those who did become pregnant, the maternal mortality was high and the fetal wastage was extreme. After insulin became available in 1922, and especially after the advent of long-acting insulin, about 1938, an increasing number of diabetic pregnancies have occurred. This number can be expected to increase since young diabetic women are now able to live very much as non-diabetics, and since there seems to be little difference in fertility. Fortunately, there is also little difference now in maternal mortality in diabetics and non-diabetics. Fetal wastage, however, is still a grave problem. To be sure, certain advances in the care of pregnant diabetics have decreased the fetal loss, but even in the best-reported results, it remains between twelve and twenty-nine per cent in contrast to seven to ten per cent in non-diabetic pregnancies. Many of the infants which do survive are edematous at birth or have respiratory difficulties. About eight per cent have congenital anomalies; hydramnios occurs in at least fourteen per cent. Some of these conditions, particularly infants larger than normal, frequently occur four or five years before the mother shows evidence of having diabetes. The percentage of stillbirths is high in prediabetic women. Until more is known about this metabolic disturbance, the fetal survival rate in diabetics probably cannot be brought into the normal non-diabetic range. However, recent reports suggest that, by following certain rules, fetal loss can be markedly reduced. The majority of the reports in the literature[1,9] suggest that it is difficult to correlate the severity or duration of the diabetes with the fetal survival rate. The most important factors related to infant mortality seem to be early age of onset of diabetes in the mother, the degree of vascular degeneration and renal involvemnt in the mother, and prenatal care.

White's classification[1] is becoming widely accepted as a basis of comparison for different series of patients. This classification is not detailed here but can be found in the original reference.

Most authors recommend the thirty-seventh or thirty-eighth week of pregnancy as the optimum time for delivery. When possible, delivery is induced; but frequently Caesarean section is necessary for delivery at this time. Whitely et al.[7] recommend timing the delivery according to the appearance of ossification of the distal epiphysis of the femur of the fetus as determined by x-ray, an x-ray being taken once every week after the thirty-fifth week. They have found that in about 80 per cent of instances this ossification occurs at the thirty-eighth week, which they feel is the optimum time for delivery. The mistake has been made, not infrequently, when Caesarean section has been resorted to that the infant has been delivered too early in which case the fetal loss may occur largely because of prematurity.

In light of the above discussion, it seemed of interest to review all of the diabetic pregnancies for the last ten years occurring at the Delaware and Memorial Hospitals, and to compare these with the series of Nelson and White[2] from Boston, the report of Stephens, Holcomb and Page from Portland,[9] and that of Pedersen and Brandstrup[8] from Copenhagen, since these three reports show a fetal survival rate far better than that usually obtained. It will be noted in Table I that the Delaware Hospital series shows a very high percentage of viable pregnancies in classes C, D, E, and F as contrasted with the Memorial Hospital, which has a very low percentage in these classes. In the latter group, there were no juvenile diabetics; seven patients required no insulin, a large number were obese and many arrived at the hospital without adequate, and sometimes no, prenatal care. In contrast, thirteen of the Delaware Hospital series were cared for by one internist, most of them with an early onset of diabetes, and 92 per cent of them were classified as C, D, E, or F. In spite of this, the fetal survival rate was better than in the combined Delaware and Memorial group, but was still distressingly low. The number, of course, is too small to be of statistical significance, but it does suggest that fetal survival is greater in those patients who have been followed carefully over a long period of time and particularly during the last several months of pregnancy have been seen frequently, once a week perhaps, by both the obstetrician and the internist. This type of management has been stressed especially by Pedersen.[8] He found in his long-term cases (under observation more than eight days) that his fetal loss was much less than in his short-term cases (under observation less than eight days) (Table II). He stresses care of pregnant diabetics in a given community by one, or a few, internists, and by one, or a few, obstetricians and pediatricians; hospitalization eight weeks before term; meticulous control of the blood sugar by the micro method three or four times a day; and delivery by induction at the start of the thirty-eighth week. In his series, delivery was by Caesarean section in only eleven per cent. In the last two years, in his long-term group, he has reduced the fetal loss in viable pregnancies to eight per cent. In both the Boston[2] and the Portland[9] series, referred to above, no cases were included which had not been followed carefully.

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* Director, Medical Department and Metabolic Clinic, Delaware Hospital; Chief Consultant in Medicine, Memorial Hospital.

TABLE I

| | WHITE 1949 | BOSTON (NELSON & WHITE) 1952 | PORTLAND (HOLCOMB) 1956 | DEL. HOSP. 1947-1957 | MEM. HOSP. 1947-1957 | DEL. AND MEM. 1947-1957 | L.B.F. (DEL.) 1947-1957 |
|---|---|---|---|---|---|---|---|
| TOTAL PATIENTS | | | 42 | 19 | 10 | 29 | 9 |
| TOTAL PREGNANCIES | | 163 | 52 | 25 | 15 | 40 | 13 |
| VIABLE PREGNANCY | 439 | 78.5% | 96.2% | 88% | 86% | 87% | 92% |
| VIABLE PREGNANCY In C, D, E, and F* | 66% | 71.8% | 60% | 81.8% | 7% | 45% | 92% |
| ONSET 10 Yrs. | | 20% | 28% | 45% | 0 | 28% | 66% |
| ONSET 20 Yrs. | 58% | 66% | 60% | 66% | 15% | 51% | 83% |
| FETAL SURVIVAL RATE | 82% | 90% | 92% | 63% | 68% | 65% | 75% |
| TOTAL FETAL LOSS (of viable) | 18% | 29% | 12% | 40% | 40% | 40% | 30% |
| CAESAREAN SECTION | | 68% | 76% | 23% | 30% | 26% | 30% |

* White's Classification[1]

TABLE II

(PEDERSEN—SERIES 1942-1953)

| | LONG TERM | SHORT TERM | TOTAL |
|---|---|---|---|
| NUMBER OF CASES | 58 | 94 | 152 |
| CLASS C, D, E & F* | 65% | 62% | 64% |
| FETAL LOSS | 12% | 36% | 27% |

* White's Classification[1]

There seems to be little doubt that there is hormonal imbalance, as reported by White, in a high percentage of patients in which there is fetal loss. In those cases with a normal sex hormonal balance, White found a ninety-five per cent fetal survival rate. Whether or not administration of hormones will correct the fetal loss is still debatable. White's reports suggest this; others do not. In the Portland series, no hormones were used, but the survival rate was just as good or slightly better, perhaps, than Nelson and White reported. Pedersen administered no hormones, with equally good results. In the cases at the Delaware and Memorial Hospitals, hormones were not used sufficiently to be significant.

The question as to whether Caesarean section should be performed for other than purely obstetrical reasons is still debatable. Equally good results, apparently, have been secured in large groups of patients when section has been performed as high as 75 per cent[2,9] or as low as 11 per cent[4,4a,8]. If the patient is under good diabetic control, the tendency seems to be to select the thirty-seventh or thirty-eighth week for delivery, whatever the method. In our Delaware Hospital series, Caesarean section was performed in 23 per cent of cases; in all instances where a living baby resulted, section was performed after the thirty-sixth week and in both cases where the baby was lost, section was performed before the thirty-seventh week. In those patients in whom labor was induced or who delivered spontaneously, the fourteen patients with living babies delivered in only three instances before the thirty-seventh week, whereas in the eight cases with fetal loss, delivery occurred after the thirty-sixth week in only two.

Aside from congenital anomalies, the cause of death in infants of diabetic mothers is frequently cerebral hemorrhage, enlarged heart, and respiratory difficulties, and especially hyaline membrane disease. The cause of the latter is not known, nor has any satisfactory treatment been devised. It also occurs in premature infants whose mothers are not diabetic.

Diabetic pregnancies can be expected to increase in number. Fetal mortality will continue to be the main problem. The accumulated evidence to date strongly suggests that in any medical community, diabetic pregnancies can best be handled by a small group of internists, obstetricians and pediatricians working as a team. Each case must be individualized, but in general, in order to achieve the lowest possible fetal loss, meticulous care of the diabetes is necessary, requiring frequent observation by both the physician and obstetrician, perhaps hospitalization sometime prior to the thirty-eighth week, Caesarean section when indicated, and prompt care of the newborn by the pediatrician.

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# THE PARASACRAL APPROACH FOR THE REPAIR OF A RECTOVESICAL FISTULA*

Glauco M. Maresca, M.D.**

and

Norman L. Cannon, M.D.***

*Natura non curat hominis mala—Phoedrus.*

We are reporting this case with the belief that the parasacral approach to the rectum is a new and interesting operation which has not as yet been reported in the English literature.

This elderly white man, age 86, presented a history of intermittent urinary retention. He was disoriented and very little information was obtained about his past history. Admission was from the Emergency Room where 1000 cc of clear urine was drained by catheter from a distended bladder. Physical examination revealed an elderly man, confused and disoriented, active and in fair general condition. The examination was normal except for the following findings: There was evidence of chronic bronchitis and cardiac dilatation. The liver was palpable two fingerbreadths below the right costal margin. There was a right inguinal hernia present. The bladder was distended to the level of the umbilicus. The prostate was enlarged about grade 2; it was smooth and soft.

Laboratory findings:
- Rbc—3.9 million
- Hemoglobin—13.4 Gm. (86%)
- Wbc—11,600
- Blood urea nitrogen—23 mg.%
- Blood creatinine—1.13 mg.%
- Blood uric acid—3.7 mg.%
- Plasma $CO_2$—19 mg.%
- Urinalysis—
  - Color—amber; clear.
  - Specific gravity—1.014
  - Albumin—3 plus
  - Sugar and acetone—negative
  - Rbc—50-80 per high power field.
  - Wbc—20-30 per high power field.

The admitting diagnosis was acute urinary retention due to prostatic hypertrophy with possible carcinoma of prostate.

A Foley catheter was left in place and cystoscopic examination was performed on the fourth hospital day. This disclosed hypertrophy of lateral and middle lobes of the prostate causing complete obstruction of the vesical neck. The bladder mucosa was hyperemic, trabeculated and sacculated.

An intravenous urogram showed normal functioning kidneys, Paget's disease of the pelvis and hypertrophic spondylitis of the lumbar vertebrae. There was no evidence of osteolytic change.

X-ray examination of the chest showed bilateral calcification of the apical pleura, chronic inflammation of the right lower lobe, and calcification of the aortic arch.

An electrocardiogram showed evidence of right ventricular hypertrophy.

A transurethral prostatic resection was performed on the ninth hospital day. A #28 Stern-McCarthy resectoscope was passed into the bladder with ease and the lateral prostatic lobes were resected. While the middle lobe was being resected at the level of the vesical neck, the bladder was accidently perforated and the resectoscope loop cut into the rectum. This accident was recognized by visual evidence of fecal material in the optical field and by feeling the resectoscope in the rectum about 5 cm. above the anal sphincter. A #28 Robinson catheter was introduced into the bladder and fastened to the penis. The catheter was draining pinkish urine, the abdomen was soft, the pulse was 80 and regular. Massive antibiotic therapy was administered in order to combat the infection, but the goal of healing of the rectal defect was not successful. On the third post-operative day, the patient was draining urine and feces from the rectum as well as from the urethral catheter. By rectum, there was a defect of about 3 cm. through the rectal wall and into the bladder. After a week of supportive therapy all hopes were abandoned for a natural healing of the fistula.

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* From the Department of Urology, Delaware Hospital.
** Resident in Urology
*** Attending Chief, Department of Urology

It was thought that the lesion was too high to be reached through the perineal route and too low to be approached from a suprapubic incision. During our recent experience with parasacral prostatectomy[1], we have often been impressed by the anatomical position of the rectum directly overlying the prostate and bladder. As a matter of fact, the dissection of the rectum from the prostatic capsule and its deviation away from the middle line constitute the most important and delicate step of this operative procedure. We thought that by entering through the sacrum, we would be right on top of the injured rectum above and the bladder neck defect below. (Figure 1.) This was accomplished. The closure of the rectum was performed in two layers using continuous chromic sutures #0. The prostatic adenoma was then completely enucleated; a #28 Foley catheter was passed from the urethra through the prostatic capsule into the bladder and inflated. The defect which extended from the capsule through the vesical neck up to the posterior wall of the bladder for a length of about 4 cm. was then closed in two layers of continuous chromic sutures #0. A Penrose drain was placed into the left ischio-rectal fossa and brought out the inferior edge of the wound. Pinkish urine was draining from the catheter at the end of the operation.

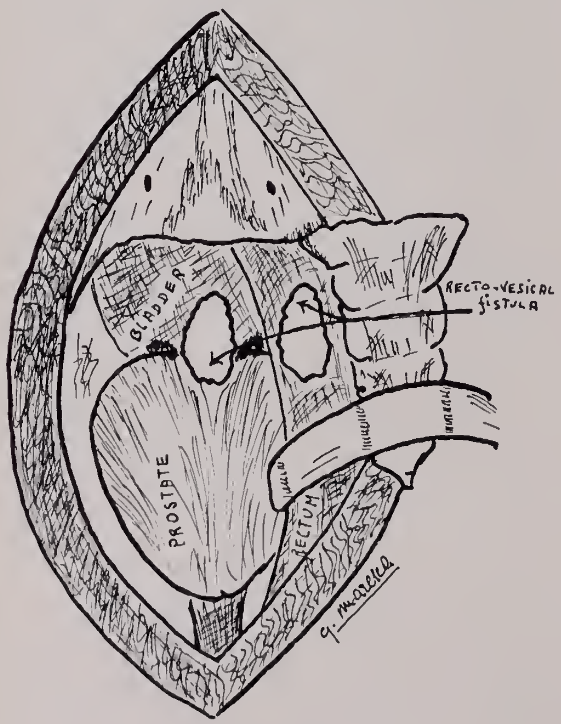

FIGURE 1

The patient had an uneventful recovery. The catheter drained clear urine for a period of two weeks; then it was removed. Meanwhile, the patient had normal bowel movements. A rectal examination showed a well healed scar where the recto-vesical fistula had been. A cystogram done forty days later showed a normal bladder with no extravasation of dye anywhere perivesically or in the rectum. The pathological report of the transurethrally resected specimen was benign prostatic hypertrophy, but the enucleated adenoma was reported as adenocarcinoma. Estrogenic therapy was begun.

The patient was discharged two months after admission with a normal functioning bladder, practically no residual urine and no nocturia. The healing of the recto-vesical fistula was completed.

We believe that the parasacral operation is the choice and most direct approach for a recto-urinary fistula at the level of the bladder neck or prostatic urethra.

### REFERENCE

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# Editorial

## EKG OR ECG—

At a recent meeting of the Executive Committee of the Delaware Heart Association, a lay member asked a physician member, "Which is correct, ECG or EKG?". This question brought to mind a series of letters published in the "Letters to the Editor" section of the Journal of the American Medical Association a number of years ago. We are publishing these letters in their entirety; we leave the decision of usage up to the individual reader.

From the J.A.M.A. December 25, 1943:

### ECG FOR ELECTROCARDIOGRAM

To the Editor:- The word "electrocardiogram" and its abbreviation "ECG" have surely become sufficiently familiar to English speaking readers to make it unnecessary, improper and even at the present time highly objectionable to see the German abbreviation "EKG" appearing frequently in the English speaking medical journals. In the journal of which I am editor, we hope to avoid this error. If it could be kept out of all American Medical Association journals this turn of the tide would soon spread to other American medical journals.

E. B. Krumbhaar, M.D., Philadelphia.

From the J.A.M.A. January 29, 1944:

### EKG OR ECG

To the Editor:- In THE JOURNAL for Dec. 25, 1943, Dr. E. B. Krumbhaar objects to the use of EKG and makes propaganda for ECG. Dr. Krumbhaar is mistaken. EKG is the right way of spelling. E K G are the initials of the three Greek words elektron, kardia and gamma; kardia means heart, as we can find in the gospel of St. Matthew, 15:8, in Novum Testamentum Graece, by Nestle, St. Louis, Concordia Publishing House, 1942. Surely St. Matthew knew how to spell kardia.

Hugo Stanka, M.D., Anna, Ill.

(On receiving a copy of Dr. Stanka's letter, Dr. Krumbhaar replied:)

To the Editor:- My suggestion of course assumed, correctly, I believe, that the word to which the abbreviation ECG referred had long since become Anglicized. "Electrokardiogram" is not found in our medical dictionaries any more than "kardiology," "kardiac," "kyst," "kakexia," "kakoethes arguendi" or numerous other words derived originally from the Greek.

As to the line about St. Matthew, I understand that it is not known whether Matthew knew only Aramaic or Greek as well. It reminds one of the good old fundamentalist who insisted on retaining the King James version of the Bible, as opposed to the Authorized, because "the language that was good enough for St. Paul is good enough for me"!

E. B. Krumbhaar, M.D., Philadelphia.

## BOOK REVIEW

Occupational Diseases of the Skin. By Louis Schwartz, M.D., Medical Director (Retired), U. S. Public Health Service; Consultant in Dermatology, National Institutes of Health, Louis Tulipan, M.D., Emeritus Clinical Professor of Dermatology, New York University, Bellevue Post-Graduate Medical School; Consulting Dermatologist, Bellevue Hospital, and Donald J. Birmingham, M.D., Medical Director, Chief Dermatologist, Occupational Health Program, U. S. Public Health Service; Assistant Professor of Dermatology and Syphilology, University of Cincinnati College of Medicine. 981 pages with 189 illustrations. 1957. 3rd edition. Lea & Febiger, Philadelphia. $18.00.

All those who are interested in dermatology and occupational medicine owe a real debt of gratitude to Drs. Schwartz, Tulipan, and Birmingham for the present revision of this standard textbook. The content is so up-to-date that most of the bibliography dates from 1943, and the reader is referred to previous editions of this work for older references. As in former editions, the first few chapters discuss compensation for industrial skin diseases, their incidence, classification, diagnosis, and general methods of prevention and treatment. Each subsequent chapter is devoted to a detailed and systematized account of the skin hazards in specific industries. These are: the hazards of handling the raw material, the manufacturing processes, and finally the use of the completed article. Throughout the book, the reader is given a differential diagnosis between the occupational eruptions and other skin diseases which simulate them.

This edition contains three new chapters which are valuable innovations. They are *Occupational Marks* by Francesca Ronchese, M.D.; *Skin Hazards from Radiation in Atomic Industry, Medicine, and Warfare* by W. D. Norwood, M.D.; and *Skin Hazards from Surface Active Agents* by Anthony M. Schwartz, Ph.D.

Since its first edition in 1939, *Occupational Diseases of the Skin* has been the standard textbook of industrial dermatology. Much of the material is the result of the authors' own observations of industrial processes and their skin hazards. The book is lucid, thorough, discriminating without being confusing, and has excellent illustrations. The third edition is a necessary and successful revision that keeps this text up-to-date.

L. K.

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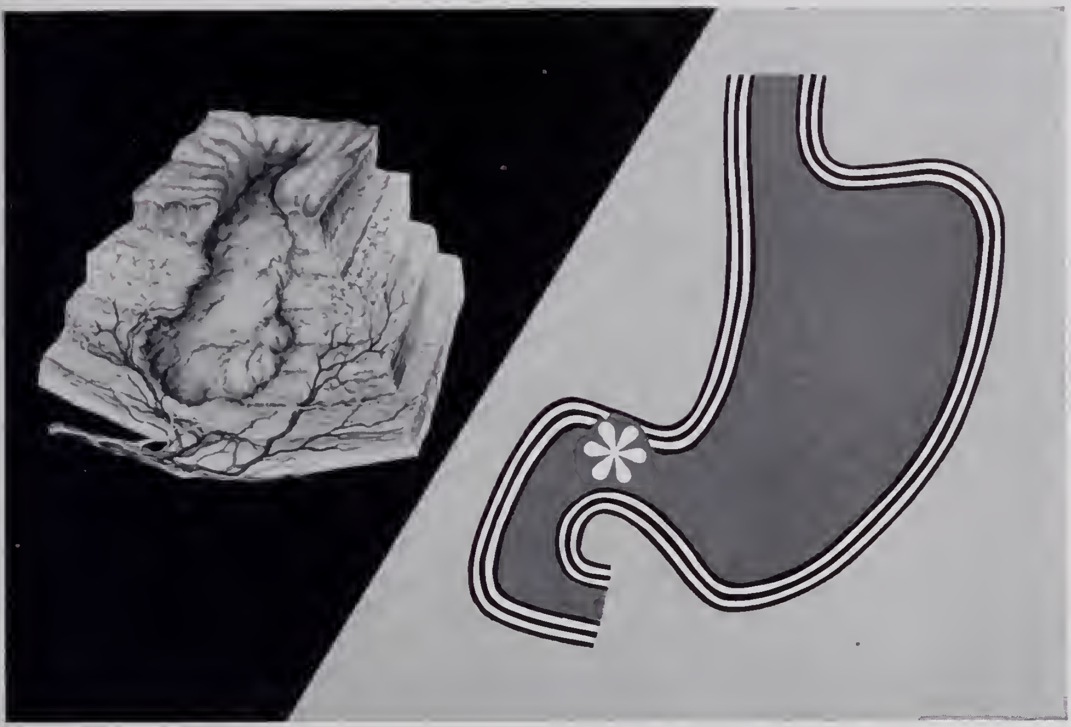

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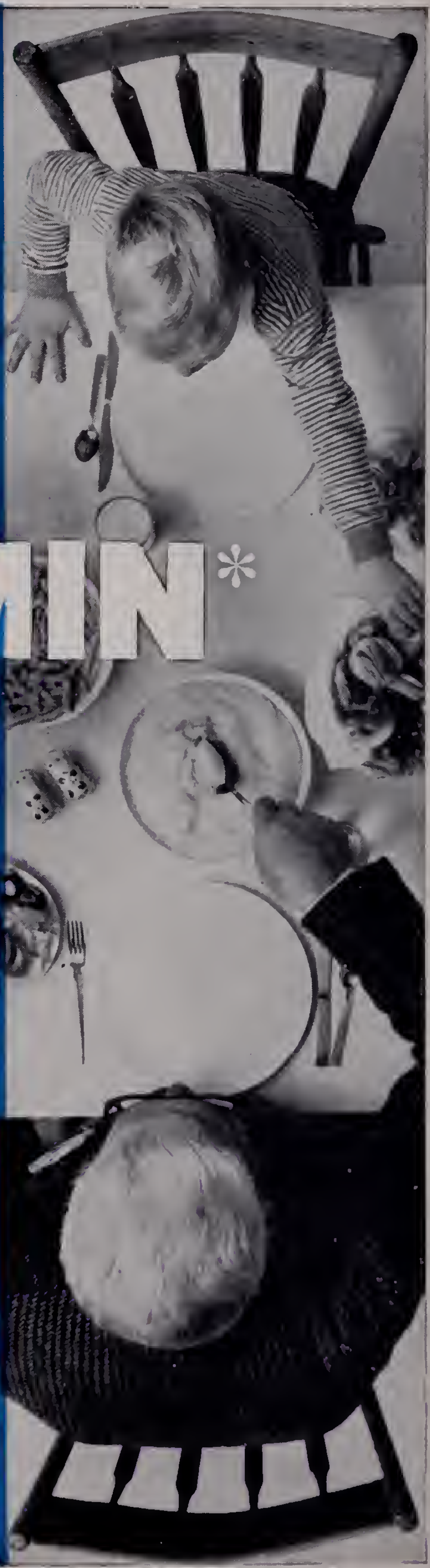

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   *Keyes, B. L.: Pennsylvania M. J. 60:177, Feb. 1957.*

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   *Sokoloff, O. J.: A.M.A. Arch. Dermat. & Syph. 74:393, Oct. 1956.*

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   *Kessler, L. N. and Barnard, R. D.: M. Times 84:431, April 1956.*

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   *Rindskopf, W., Ravreby, M., Gutenkauf, C. and Sands, S. L.: J. Iowa M. Soc. 47:57, Feb. 1957.*

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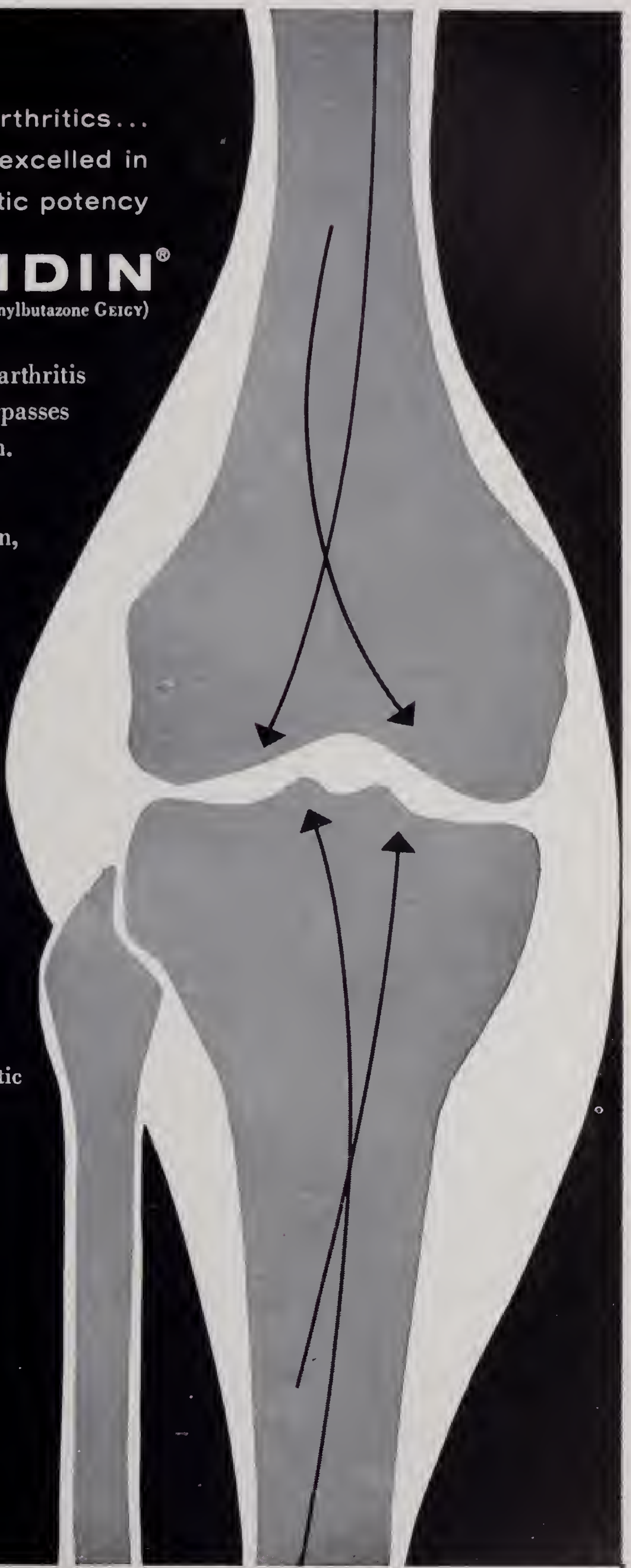

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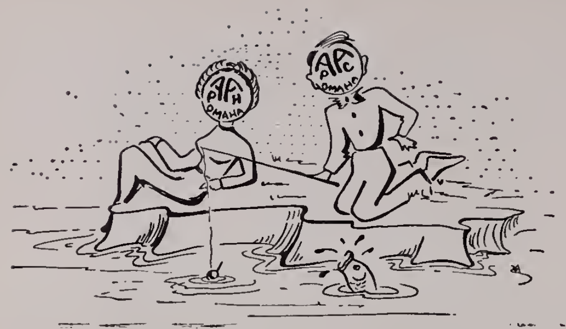

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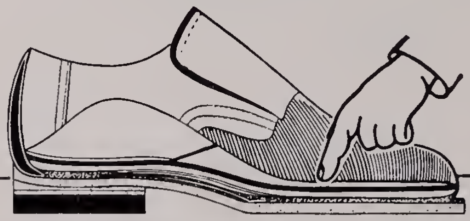

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1. Jackson, P. L.: Iron Deficiency Anemia in Infants, Editorial, J.A.M.A. *160*:976 (Mar. 17) 1956.
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The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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Charlemagne squinted across the fire. "Who is it?" he challenged in Creole.

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*Ferguson, J. T., and Linn, F. V. Z.: Antibiotic Med. & Clin. Therapy *3*:329, 1956.

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1. Cornbleet, T., and Barsky, S.: The Role of the Tranquilizing Drugs in Dermatology, presented at 115th Annual Meeting of Illinois State Medical Society, May 19, 1955.

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# DELAWARE STATE MEDICAL JOURNAL

*Official Organ of the Medical Society of Delaware*
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VOLUME 29 AUGUST, 1957 NUMBER 8

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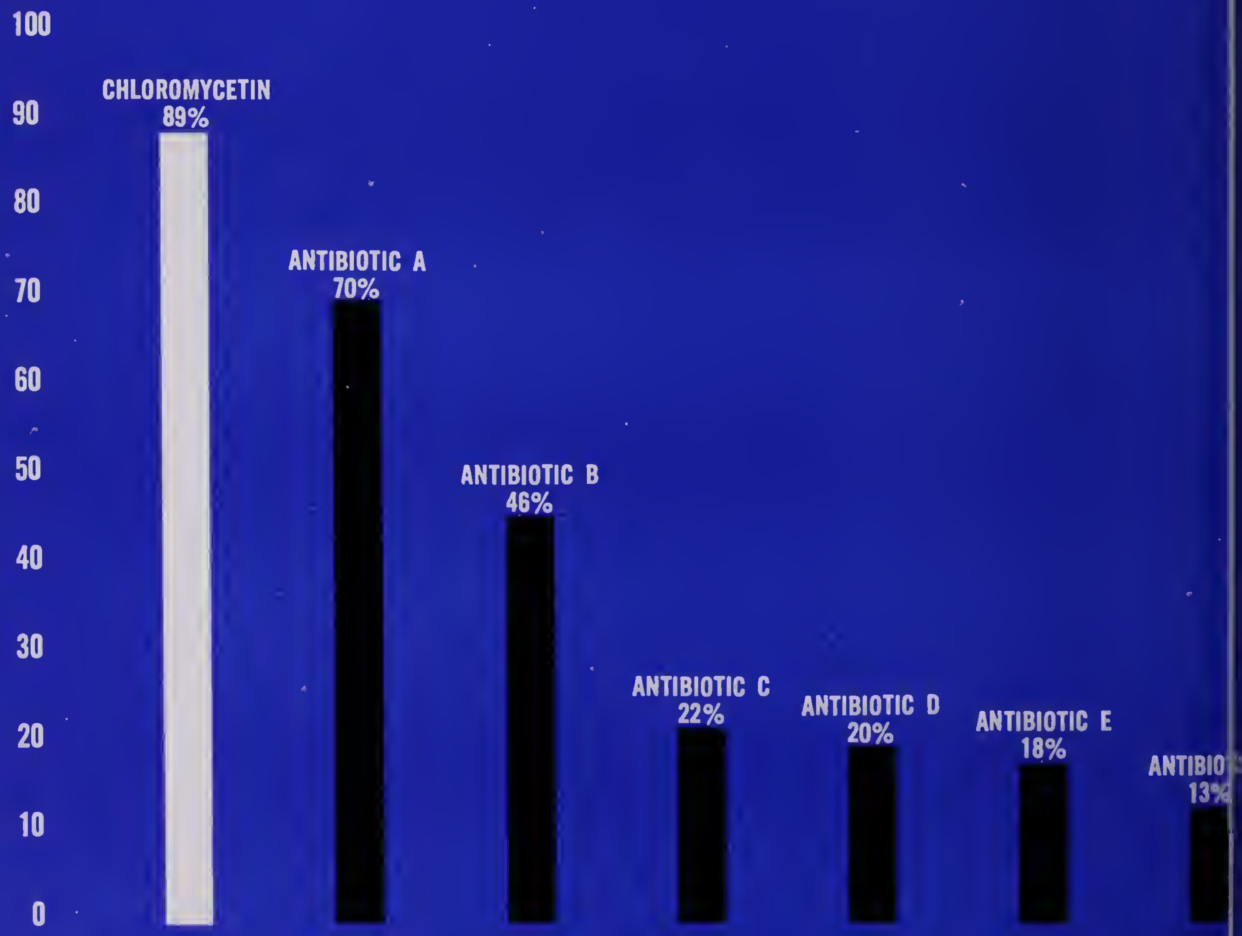

*This graph is adapted from Kempe.[1] The single bar designated as "Antibiotics F" represents three widely used, chemically related agents grouped together by the investigator in his study.

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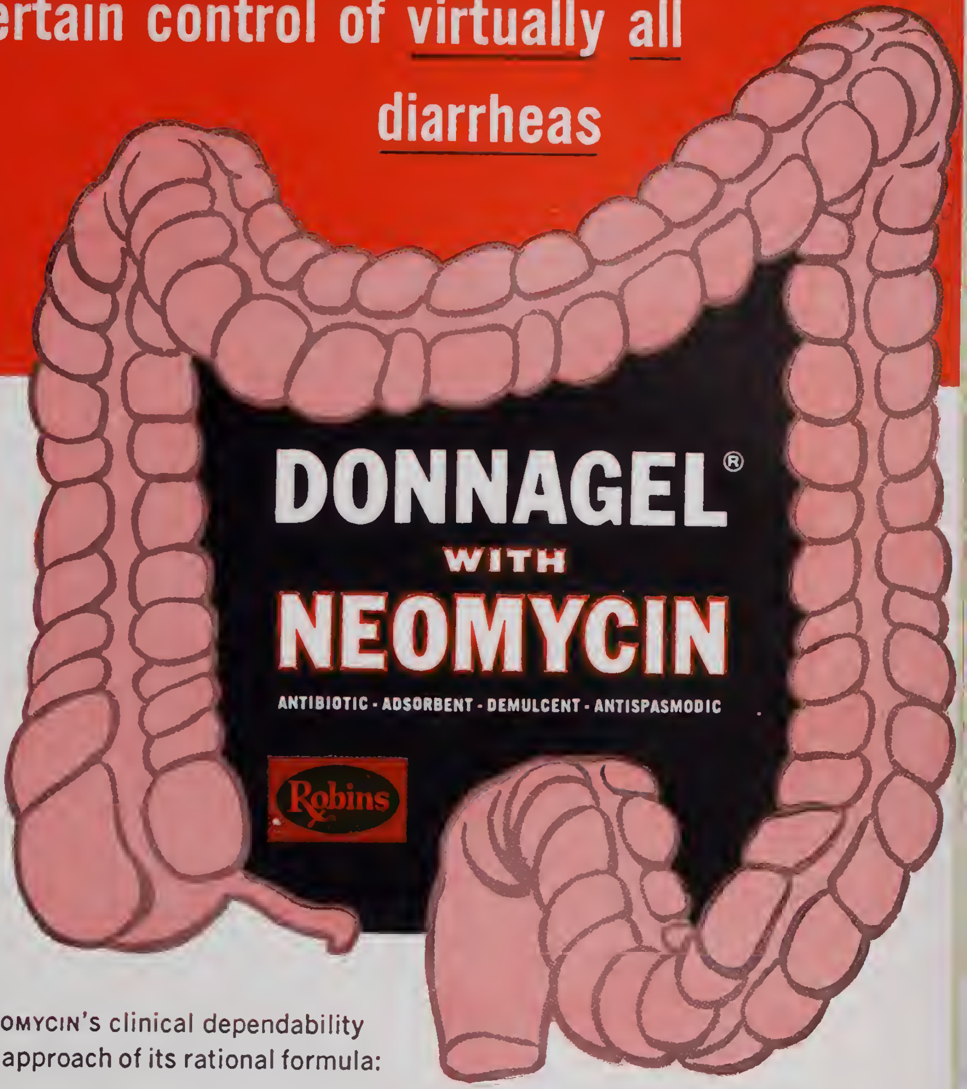

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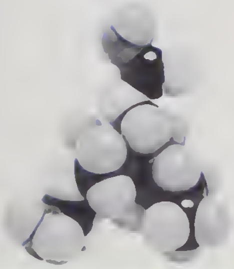

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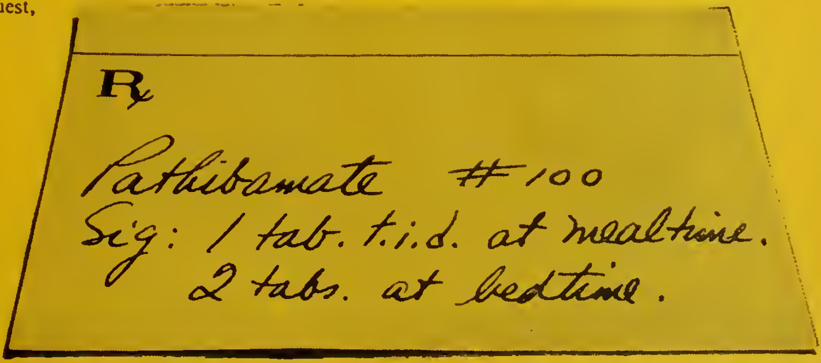

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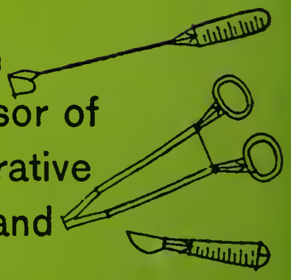

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# RECREATION: AN IMPORTANT MEDICAL ADJUNCT

M. A. Tarumianz, M. D.*

Recreation is now generally recognized as essential for persons of all ages if they are ever to approach normal living. In our present time, which has been called by some "the age of anxiety," the necessity for relaxation and refreshment "after toil or anxiety," assumes greater importance than ever. The effect of anxiety on infants is now recognized. There is hardly a parent, teacher, or worker associated with other persons ranging from infancy to senescence who cannot cite from his personal observations and experience examples of persons torn by anxieties, some often are deep seated. The value of recreation in helping people to relax and the need for finding recreational outlets cannot be overemphasized. Medical practice has long appreciated the role of rest and relaxation in rehabilitating the sick mind and body. As medical science discovers or developes therapies which increase the life span, the importance of procedures which make life meaningful to the individual himself, as well as to society, is highlighted. Recreation has much to contribute, not only in rehabilitating the ill but in preserving wholesome physical and mental health. It is an important adjunct to medicine.

The need for people to play has always existed. From as far back in history as man has penetrated have come records of play. From the ancient Greeks came the tradition of sports now perpetuated in the Olympic Games. In recent years the nations of our world, in the midst of their "cold war," have been able to join together in the activities of the Olympic Games.

Colonial history in this country includes records of the "quilting bees, roof-raising parties, country dance junkets, singing, and cornhuskings" which brought the early settlers together to help each other as they sought to build a nation in the wilderness. In the coastal cities and more populated areas other forms of recreation developed. Theatres, coffee houses and taverns, cock fights, gambling, bull and bear baiting, and racing, offered amusement for the settlers.[1]

Unfortunately, approval and acceptance of play and recreation did not last in colonial times. In the seventeenth century in some of the states most forms of recreation were officially disapproved. For example, in 1619 the Virginia Assembly ruled that any person found idle should be bound or sentenced to hard labor. At the same time, this legislature prohibited "gambling with dice or cards, regulated drinking, provided penalties for too expensive apparel, and sternly enforced church attendance on the Sabbath."[2] The restrictions set in New England under the domination of the Calvinist theologians were based on the viewpoint that all recreation was frivolous and "a danger to the material and spiritual life of the community." This attitude was general throughout New England and local laws ordered the constables to "search after all manner of gameing, singing and dancing," and to report "disordered meetings."[3] This disapproval of recreational activities seemed to stem from the idea that hard work, self-denial, the absorption of one's physical powers were essential for the acquisition of property.

New York State and the Southern Colonies overcame these prejudices against pleasure and developed various recreational activities; for example, outdoor bowling, trap shooting, and such activities for which the Colonial estates like Mount Vernon provided well-kept land. The negative attitude persisted in the New England colonies, however, in spite of the more liberal spirit in neighboring New York. As late as the 1750's young John Adams noted in his diary, "Let no trifling diversion, or amusement . . . , no girl, no gun, no cards, no flutes, no violins, no dress, no tobacco, no laziness, decoy you from your books."[4] In 1792, the "Discipline of the Methodist Episcopal Church" set forth the position of the church in these terms: "We prohibit playing in the strongest terms . . . . Let this rule be observed with the strictest nicety, for those who play when they are young will play when they are old."[5]

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Fortunately, as the nation became better defined as an entity, and probably as the anxieties regarding the acquisition of material gains lessened by the nineteenth century, entertainment, both public and private, became accepted and fashionable. Young men and women were permitted to dance, sing, play, skate, and sleigh-ride together. Large theatres were built. Drama and theatrical spectacles were offered to the public. The "gentry" gave the lavish houseparties and balls such as were described by Margaret Mitchell in *Gone With The Wind*. Following the Civil War, interest in sports had a great upsurge. Baseball, track, and fooball became popular. Somewhat later, baseball, boxing, and tennis joined the first three sports. Bicycling and roller skating were intensely popular during this time, not among juveniles as we experience today, but among adults to the extent that cartoons and pictures symbolizing the "gay '90's" often show a man or woman riding the high-wheeled bicycle or skating, or on a tandem bike.

As recreation became an accepted facet of American life, entrepreneurs with an eye to ready profits capitalized on the universal desire for play, especially in adult Americans, and built into huge industries commercial amusement centers. These have included night clubs, roadhouses, theatres, circuses, movie houses, dance halls, amusement parks, swimming pools, bowling alleys, golf courses, sports stadiums, race tracks, and other such centers. The commercialization of amusements has tended to rob the American public of one of the chief benefits of recreation, the stimulation and development which accrue to an individual through active participation. For several decades of the twentieth century we were threatened with a peculiar kind of malady which has sometimes been called "spectatoritis."[6] Also some criminal elements, especially in large cities, began to control many of these recreational outlets with the result that religious and civic groups have actively campaigned against these activities and in many cities and states strict ordinances have been passed to control them. The growth of the commercial recreational facilities, with all their faults, are proof of the desire and need of people for play and play facilities.

Public-spirited religious and community groups in the last several decades have recognized the need for recreation in the lives of old and young. Both religious and community organizations have assumed constructive leadership in providing wholesome activities and excellent facilities. Churches of several denominations and some Hebrew temples are now providing "guild houses," "parish houses," or some building separate from the worship center, in which movies, dances, basketball games, social parties, lectures, dramatics, and other types of recreation are being given. Some communities are providing community centers. The taxpayers and schoolboards in some areas are permitting the school properties to be used for community recreational activities that meet the needs of various age levels. Character building organizations, both lay and church affiliated, like the Young Men's and Young Women's Christian Associations, the Knights of Columbus, the Catholic Youth Organization, the Boy Scouts and Girl Scouts, the Campfire Girls, Big Brother and Big Sister Federations, the Boy's Clubs of America, Junior Achievement, Junior Red Cross have been active in providing both programs and facilities for recreation. In rural sections of the states the needs and desires of young people and adults for recreation are being met by such organizations as the 4-H Clubs, the youth sections of the Farmer's Union and Dairyman's League of America, various Grange and Cooperative groups, as well as some of those listed above.

As interest in recreation has increased, the value of recreation has been rather assumed, somewhat on the basis of an idea popularly held but one without too much scientific validity; namely, that people want what is good for them. People may want what is good for them if they know what is good for them.

The fact is that in our modern life many people are too confused, too disturbed mentally and emotionally to know what they want or should want. Of the 160 million people in the United States, as counted in the 1950 United States census, an estimated 16 million (16,000,000) in 1957 are suffering from some form of mental illness. This means that one in every ten persons is the victim of mental illness of some type. Mental illness and various personality and social disturbances are generally significant factors in criminal behavior, delinquency, suicide, alcoholism, narcotics addiction, and often in divorce cases. For every four marriages in a year, one divorce occurs.[7]

Each year approximately 265,000 children between the ages of 7 and 17 years of age are brought to the juvenile courts. This represents 1.2 per cent of approximately 22 million children in that age group. Indeed, mental illness takes a large toll among children and youth. According to a rather recently completed study of the Columbia University Department of Psychiatry, an estimated 10 per cent of the public school children in the United States are emotionally disturbed and need mental guidance. At least 200,000 children with less serious emotional disorders receive treatment each year at mental health clinics throughout the United States.[8]

How many of the mentally ill persons in the United States are hospitalized for treatment? Seventy-four per cent of all state mental hospitals are overcrowded. In 1954, 443,339 new and returned patients were admitted to mental hospitals and psychiatric units of general hospitals. In 1956, approximately, 2½ million men, women, and children were treated for some form of mental disorder in mental hospitals, psychiatric clinics or by private psychiatricts.[9]

In addition to the large number of mentally ill patients hospitalized each year, about 50 per cent of the patients treated by general practitioners suffer from some form of mental or emotional illness. The role of mental and emotional disturbance in the etiology of physical ills is now widely recognized.

Mental illness is an expensive factor in the economy of our country. How much is it costing the United States annually? In the fiscal year 1955-1956 the maintenance expenditures for public mental hospitals totaled $662,146,372. New construction, additions and renovations to mental hospital facilities as reported by state authcrities, as of November 1955, totaled $750,000,000. The Veterans Administration is spending about $522 million annually for mentally ill patients. The average money income of individuals in 1955 was approximately $4,650. If the nearly 445,000 persons admitted to mental hospitals in 1954 alone had earned that average income, their total earned income in one year would have amounted to two billion dollars.

Mental illness in the United States is costing us a tremendous sum annually. This is of little importance, however, in comparison to the waste in human lives. It is not possible to count in dollars and cents the real loss to society in creative and constructive activities represented by the host of people suffering from minor and major illnesses.

What is the relation between these statistics on mental illness in the United States and recreation? Recreation has been recognized, in the words of Dr. Martin Meyer, Coordinator of Activity Therapy of the Division of Mental Health in Indiana, as "an essential ingredient in the formula for abundant and fruitful living and in our pursuit of happiness. It is the time we pause, change our pace, refresh ourselves and recover our energies, spirit and perspective to face the strains and drains of a mechanized, competitive, and sometimes fearful society. Through recreation, we learn to minimize our problems, enjoy our fantasies, and for a moment pursue our natural instincts for creativity, free choice and selective companionship."[10]

Psychiatrists and general physicians, as well, have become increasingly aware of the futility of "rest cures" for patients physically or mentally ill. They know that the patient must have meaningful activity. The Executive Director of a home for the aged commented, " . . . one can understand truly the depth of meaning in the phrase 'having nothing to do is the most dulling human experience.' "[11] Alexander Reid Martin, in the capacity of Chairman of the standing Committee of the American Psychiatric Association with Leisure Time Agencies, expressed his view on "rest cures" thus: "Accordingly, all our ideas about what constitutes leisure, rest and relaxation, and their value, must be re-examined and revised. The old standby prescription for so many so-called nervous breakdowns, to "take a rest," cannot be dispensed indiscriminately."[12]

Recreation has different meanings for different people. An activity which is work for one person may be recreation for another. Not the form of the activity but the attitude of the person engaging in the activity is the key to recreation. Genuine relaxation is possible only when the activity is undertaken by the participant for the sake of the activity itself. "Recreation, in the true sense of the term, can take place only during periods of healthy leisure and relaxation."[13] Often persons engage in what they call recreational activities so compulsively, so intensely, so seriously, and in such an unrelaxed fashion that they are worn out by these activities intended to help them relax. Under these conditions, the intended function of the activity, namely, to improve the health, expand and develop the personality, is not fulfilled.

What types of recreation have been found to be useful adjuncts to preventive medicine as well as to treatment? Formerly there was a tendency to think of recreation chiefly in terms of sports or athletic activities, pursuits which exercise and develop the big muscles. Participation in this kind of activity, except as a spectator, is principally for the younger people. As the body progresses toward maturity and later life, strenuous excerise is not recommended. Indeed, it can be quite dangerous. Fortunately, the concept is changing. The scope of recreation is broadening to include many activities which may be undertaken by an individual or a small group. In reality, any activity which is not harmful to the individual or to others can be recreational if it is "an experience providing immediate and inherent satisfactions to the individual who voluntarily participates in an activity."[14]

Music has been recognized for its therapeutic values from earliest history of which there is record. The Bible gives numerous instances of the use of music to refresh the weary and soothe the troubled. "And it came to pass, when the evil spirit from God was upon Saul, that David took a harp and played with his hand; so Saul was refreshed, and was well, and the evil spirit departed from him,"[15] wrote one Hebrew author of the Old Testament. The rhythm of music may act as a strong mental stimulant. It "also gives a certain sense of well-being and satisfaction from its orderliness and precision."[16] The melody of music may contribute to relaxation. It may call forth former experience and thus relieve the mind of the problems of the present, permitting recall of "the pleasant, mellow days of the past." The harmony, or mode as the musician calls it, has direct emotional content. "Major modes, in general, promote happiness and minor modes, to the contrary, are usually used to suggest sadness, conflict or sometimes only contrast."[17]

Music may serve as a means of communication, self-expression of the deeper feelings, for the individual unable to verbalize freely. A patient in a psychiatric hospital was reported as sitting at the piano playing music described as "his own mood music." As he played he expected the listener to be quiet, "but he would say softly, 'Did you ever feel like this?' Then he would describe his feelings. This patient is said to have used music as a basis of communication with many people."[18]

Dr. Ira M. Altshuler, who has studied intensively the effect of music on mentally ill patients, found that music with simple patterns of rhythm sometimes penetrated the defenses of the most regressed patients.[19] In reviewing William Van de Wall's book, *Music In Hospitals*, Altshuler commented further thus: "It has been found that music arouses attention in disturbed and confused patients, modifies their mood, stimulates their associations and imagery. It was observed that music can replace temporarily hallucinations, redirect aggression, decrease tension, and soften hostility. . . ."[20]

An investigation was made of the effect of music upon the speed with which patients awoke after the administration of electroshock therapy. The researchers of the study under comment were influenced in their hypothesis by the findings in other studies. For example, Leedy and Leedy noted "that the use of music with EST (electroshock therapy) resulted in more rapid return of consciousness and decreased restlessness."[21] Price and his colleagues "employed music that was melodic and sentimental, without strong rhythm, in the immediate post shock awakening phase 'to elicit pleasure and gradually arouse the desire for voluntary activity.' "[22]

The Shakin study answered affirmatively the initial hypothesis: the speed of recovery or awakening from electroshock therapy is affected by music during the administration of EST and the post-administrative period. This study showed further that "bright jazz results in greater rapidity of awakening after EST." The findings suggest, however, that music may increase the confusional effects of EST. When bright jazz had been played, a significantly large proportion of the patients forgot or misperceived the music. Also, only on the days when no music had been played did the subjects estimate with any degree of accuracy their recovery time. Further study on this effect of types of music is suggested, for if other investigators verify this finding it would have implications for "the spacing of treatments as in the regressive method which attempts to induce confusion completely and quickly."[23]

At another hospital for mental patients it was observed that patients waiting for electro-convulsive treatments were less restless and made fewer demands, as for cigarettes and going to the toilet, when relaxing, cheerful rhythms were played while they waited for their treatments. During the actual treatment period the volume of the music was kept quite low, the music providing "a pleasant undertone." As the patient began to awaken, a slightly stronger rhythm was played. The comment was made, "Primitive rhythms are rarely good, as they rouse baser instincts in an emotionally insecure person."[24]

Music as therapy needs to be more than just a listening activity. It should involve participation of the patients as much as is consistent with their condition. With senile patients, strong, rhythmic music has been found most beneficial as "it induces motor responses such as walking about, clapping the hands, tapping the feet, or nodding the head, stimulating the appetite and creating a feeling of general well-being. The use of rhythm instruments with this type of patients often elicits active participation. Good results have been obtained with aged and very deteriorated patients through the use of marches, waltzes, folk songs, and lively, familiar hymns expressing hope."[25]

Leonard Gilman, M. D., and Francis Puperto, with the approval of the Surgeon General's Office, conducted a three and a half year study of the effect of music on psychiatric patients. They published the following conclusions:

"1. A systematic and skillful appreciation of music in neuropsychiatric hospitals has proved to be a definite adjunct to the psychiatric regime.
2. The therapeutic value of music has not yet been exploited to the fullest advantage.
3. There is an urgent need for future controlled studies and further development of the procedures and methods devised in this study."[26]

Art work, such as painting, drawing, and sculpturing have demonstrated their usefulness as the means of emotional release. It has been said, "The deeper the feelings, the less will we find words to express them."[27] To this sentiment might be added, "the deeper the feelings, the fewer the people we can tell them to."

An artist working with patients at St. Elizabeth's Hospital in Washington, D. C., commented: "On the wards, art is sometimes a first activity when verbal or other direct contacts are still guarded against. It will be first a private activity, then shared with me, and then more with others on the ward. . . . It is a means for a patient to enjoy himself as one would at any recreation, but some of the most helpful relationships have been in cases where little or no drawing was the opener and was dropped as the real significance of the relationship was established, through congenial interests or something generally or specifically beneficial. . ."[28]

Dr. Fritz Freyhan, writing a number of years ago of the importance of art work for the interpretation of psychic states, drew on the experience with patients in the Delaware State Hospital whose art productions aided materially in differential diagnosis. Dr. Freyhan pointed out that the patient's interpretation of his work to the physician can be of as great value as the production itself in giving the therapist access to the patient's dynamic and emotional state. Even those patients who are chiefly "reproductive" in their work, copying rather than creating, through their choice of subject, colors, method of execution as whether they copy exactly or change some features, give the physician considerable opportunity for evaluative interpretation.[29]

Margaret Naumberg, more than ten years ago, wrote of her use of the free art expression for diagnostic and therapeutic purposes with neurotic and acting-out children and adolescents. In a more recent book Miss Naumberg gave detailed case studies of two older adolescent schizophrenic girls in whom considerable improvement resulted from a series of art sessions with a skillful therapist. One girl, whose "symptoms consisted of psychosomatic complaints, the telling of fantastic stories, and depressed moods in which she wandered away from home, with little memory afterward of where she had been or what had happened during such runaway episodes," was able, in discussing her art, to express her conflicts about her relations with her foster mother with whom she had lived since age three. She also recalled many childhood and adolescent memories and worked through some of her conflicts about sex and her experiences with men.[30, 30a]

The relation between color and personality has been the subject of study for a number of years. Faber Birren, who has been doing extensive work in the application of color to promote the highest in human efficiency, welfare and safety, called attention to the significance of reaction to color in assessing the psychic states and personality of individuals. He also pointed out the necessity for an understanding of the effect of color, especially in regard to the environment of disturbed people. In this regard he commented:

"In brief, it may be safely concluded that bright light and stimulating colors are conducive to physical and *muscular* activity, while the more subdued environment is conducive to physical relaxation and *mental* activity . . . For most of us, at least, an extroverted temperament may be content in a bright and colorful environment, while an introverted temperament finds greatest peace in a more sedate and conservative setting . . . Patients in a frantic and manic state may require sedation with color, blue and green tones, dim illumination. The extreme melancholic may need a compensating warmth of hue and brightness of light."[31]

A study of art in psychotherapy was undertaken in 1943 by a psychiatric team comprising a male psychiatrist, a female psychiatric social worker, and a male artist working with patients on the neuropsychiatric ward in the 38th U. S. Army General Hospital in the Middle East Theatre of War. Through this study, the effectiveness of art as a diagnostic agent, as a therapeutic agent, and as an objective means of following the progress of therapy were demonstrated.[32]

This investigation pointed up the significance of motion and lack of motion in drawings, and observed a definite relationship between color and motion existing in patients suffering from neuroses. Attention was also given to the insight into the stability of personality which is obtainable through observation of the fluctuation in use of color, motion, and content of an individual's art productions from day to day. "The greater the fluctuation, the greater the clinical instability."[33]

Although sculpture is an art form executed frequently, there have been few investigations correlating the productions of the sculptor with his personality. Such writings on the subject as exist are chiefly in foreign languages. One study in English, by an American psychiatrist, presented in detail the case history of a sculptress who came into psychiatric care at age 53. A random sample of her productions was correlated with the psychiatrist's observations on the patient's psychic condition at various periods during psychotherapy, as well as with her interpretation of her creations both during treatment and after psychotherapy had been terminated. The study indicated that the patient's personality patterns and case history were clearly reflected in the art pieces carved or molded from various materials.[34]

E. Cunningham Dax, in the second Beattie-Smith Lecture delivered at Melbourne, Australia, commented that both carving and modeling permit the liberation of much more aggression than is true of other creative activities. In this form of art, figures of humans or animals are more often produced than in painting or ceramics.[35] Frequently the figures are self-images, love objects, or symbols through which are represented aspects of the patient's preoccupation. Dax observed further, "Carving is slow and more detailed, and necessitates greater discipline and a constant reduction in size; modelling, on the other hand, gives a more rapid satisfaction; it allows of elaboration and freer expression."[36]

In considering art as a medical adjunct, one should remember that this form of self-expression is not limited to those persons who before the onset of illness had used this medium. Creative art, especially when no demand is made for executing according to a set standard or level of technical perfection, is available to most people. A case in point was recorded of an "alcoholic, manic Spanish farmer" of "limited education". During hospitalization, in the acute phase of his mania, this patient made a large series of wood carvings which were strongly religious. As the farmer's condition improved, his creations became more utilitarian. When he was nearing recovery, he asked to do carpentry and to farm. Concerning his art productions, he did not believe that he had made them.[37]

The release of emotion through interpretative dancing, folk dancing, and social dancing has been widely recognized. A case is mentioned in the literature of "a rather quiet patient dancing his interpretation of the Ritual Fire Dance before an audience. His movements were very dramatic, his face contorted, and he seemed completely absorbed in the dance. Following it, he was exhausted."[38] Shortly afterwards, this patient complained of cramps and asked to see his physician. His discussion with the doctor turned into a therapeutic session for the patient in which he came to see the relation between the cramps and his emotional expressions in the dance.[39]

Attending dramatic performances, as well as performing in dramas or other types of dramatic activity such as pageants, talent and stunt programs, may be of distinct value in the treatment of personality disturbances as well as in prevention of such difficulties. The reference here is to dramatic activities organized for recreation in contradistinction to psychodrama, which is a type of group psychotherapy designed to help people develop insight into their psychological problems through the mechanism of role playing and interpretations made by the therapist. [40] Through taking a role in a play, an individual may have opportunity to act out feelings and ambitions of which he may have been unaware. The presentation of a dramatic performance has many values. For, in addition to the pleasure and emotional release which the actors may experience, the technical details, like painting and constructing scenery, making costumes, staging, and the many other activities necessitated by a performance afford opportunity for creativity, socialization, and constructive participation of numerous persons representing a wide range of abilities and, as might be added, problems.

In discussing recreation as a medical adjunct, something must be said about the therapeutic aspects of children's play activities. Play has been called the child's "safety valve for hidden wishes and fears". The literature contains many references supporting this idea, alluding "to a child's play as a cathartic release, a discernment of personality patterns, or a means of revealing himself, even in situations which are not intended to be therapeutic".[41] Observation of children at play can give significant insight into the personality and the problems of the individuals in the activity. Anna Freud, who was one of the first to use play in the psychoanalysis of children, referred to this. For example, she said, "Neurotic children are invariably disturbed in their play activity. With certain types of neuroses imaginative play is excessive at the expense of constructive play . . . This is sometimes taken as an asset by the parents, as the sign of an especially vivid imagination . . . but the neurotic element is unmistakable when such play becomes repetitive, monotonous, and interferes with all other kinds of activity."[42]

In playing, a child may pretend to be someone whom he admires and loves, someone whom he wishes to resemble. His choice of role in play may be determined by his admiration and his wishful anticipation of his own adult role. His choice of role in play might be influenced, however, by "frustration, deprivation, or fear".[43] The child, instead of assuming a role himself, may assign it to an inanimate object, a toy animal or a doll, a pillow, a piece of wood, or some other object. He may pretend to have an imaginary companion. This kind of play may give "the child a chance to retaliate" for some of his experiences. A young child not under severe emotional strain will play like this at times, assigning a role, then dropping it with ease. When the mechanism is intensified, especially in an older child, emotional disturbance is indicated.

Emotional release is gained by the child through play. One writer said, "Children play in order to mitigate, to deny, or temporarily to solve a conflict. In play the child recaptures for awhile the omnipotence he once believed he possesed. He repeats and gradually assimilates an experience that was traumatic or a narcissistic insult. Play may help him to overcome a specific fear." Then was added, "And, of course, play is a source of pleasure".[44] There are other values to children's play, but the ones cited are probably the most pertinent from the point of view of play as a medical adjunct.

The efficacy of play as an important adjunct to therapy with children has been demonstrated by experience in the two residential treatment centers maintained by the State of Delaware. At the Governor Bacon Health Center, which provides residential care and treatment for emotionally disturbed children of normal intelligence, and at the Hospital for The Mentally Retarded play therapy and a well-planned, extensive recreation program provide diagnostic material, therapeutic processes, and means for following the progress of emotionally disturbed children toward personality integration. Recreation is a significant part of the milieu therapy afforded by these two residential treatment centers.

The value of recreation in the socialization process is paramount for all age levels and for practically all persons. Play activity carried on in a group setting "tends to stimulate considerable personal interplay and to develop relationships which can be extremely significant, in terms of the personality development of the group members."[45] Social communication is very important. Often as individuals become confused and emotionally ill, they begin to withdraw from others and to turn their thoughts more and more into themselves, to become too introspective. As this process continues, they try to reach out to others but often in a bizarre way which may be destructive of relationships. Recreation has a genuine role in providing acceptable social relationships to prevent persons from becoming too introspective. For the mentally ill hospitalized patients it is invaluable. Sometimes the first step in a psychotic patient's return to health has come through his exposure to recreational activities of various types during which he may have sat apparently unaware and unmoved, then one day timidly and hesitatingly participating at some point.[46]

The statement regarding the importance of recreation to all age levels and groups includes the mentally retarded. Although their activities may need to be simpler than one would provide for normal persons of the same age group, many of the mentally retarded are quite capable of participating in group activities. One shameful area of neglect in the care of the mentally retarded has been the lack of recreation.

In addition to providing wholesome and purposeful stimulation and enjoyment for the mentally retarded, some recreational activities have diagnostic value in studying this group. For example, Heinz Werner's Rorschach study of two groups of male mentally retarded children, nineteen of whom had been diagnosed as brain injured and nineteen as handicapped by a familial type of mental retardation, found a statistically significant difference between the two groups in their response to color. The brain-injured children gave pure color responses to the Rorschach cards while the children with the familial type of mental retardation gave practically none.[47]

Occasionally, hobby activities have opened up to individuals new vocational opportunities. Especially important are recreational pursuits to older people. These interests should be developed before retirement from the work to which they may have devoted thirty or forty years. All kinds of personality problems, organic ills, intellectual deterioration, and moral problems can develop in elderly persons who have come suddenly to the point of retirement without having developed a philosophy of "true healthy relaxation and the enjoyment of creative use of leisure time".[48]

The age group which is the second highest in rate of mental disorders is the geriatrics group, persons 60 years of age and older. This group represents about 38 per cent of all new admissions to the public mental hospital.[49] In 1953, 27 percent of all first admissions to the public mental hospitals were patients with cerebral arteriosclerosis, other circulatory disturbances, and senile brain disease.[50] While science has not yet been able to eliminate the deterioration of the body processes through aging, many of the older age group who become mental patients would not become mentally ill if they had stimulating, creative activities in which to engage after their participation in the work-a-day world has come to an end.

Jules Masserman, in his contribution to a symposium on the psychiatric aspects of aging, stated "Obviously, one way to avert the empty loneliness of old age is to develop, while yet young, a versatility of interests, technics, and satisfactions that can be continued throughout life. Reading, science, art, philosophy—these are deathless, and almost independent of retained manipulative skills . . ."[51]

The importance of recreation as a medical adjunct has been established as concepts of preventive medicine and therapy have developed the holistic approach, that is, the interrelation of all facets of the individual. The *soma* and the *psyche* affect each other. Recreation must be considered not only as a part of a preventive social and medical approach to the daily life of the individual. It must be definitely regarded as a significant adjunct to preventive medicine and treatment.

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# OBSERVATIONS ON THE CLINICAL USE OF TRANQUILIZING AGENTS**

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Over three years have passed since psychopharmacology began to invade medical practice. The appeal of what has popularly become known as tranquilizing drugs has rapidly gained momentum. Today one of every three prescribed medications is estimated to be a tranquilizing drug. The resulting impact not only on psychiatric patients but on any and every citizen who desires freedom from the discomforts of anxiety, has stirred health authorities, theologians and philosophers into anxious reexamination of therapeutic needs.

We shall neither concern ourselves with the misconceptions of the meaning of anxiety nor with the question of its modifiability by means of everyday chemotherapy. It is the purpose of this report to present particular aspects of psychopharmacological therapies which are essential for an understanding of their therapeutic effectiveness and limitations.

When Delay and Deniker introduced chlorpromazine in 1952, they advanced the idea that there was room in psychiatric therapy for methods which did not utilize shock and intensive stimulation but relaxation of the organism in order to suppress and block mechanisms of alarm and irritation. From the outset, Delay and Deniker described the effectiveness of chlorpromazine with regards to its applicability to "mental disturbances of considerable seriousness", referring specifically to "states of excitement and agitation". The unique capacity of chlorpromazine to inhibit disturbed behavior without producing hypnotic effects, provided the rationale for a technique of prolonged treatment which Delay and Deniker adopted under the name, "neuroleptic treatment". I propose that we adhere to this classification, that we refer to "neuroleptic drugs" and that we avoid the generalizing and seductive appeal of "tranquilizers" which only too frequently misleads both physician and patient.

The introduction of chlorpromazine and the almost simultaneous discovery of reserpine gave rise to a huge wave of interest in basic and clinical research as well as to an intensified effort by the pharmaceutical laboratories to find varieties of new compounds with similar effects.

The multitude of investigations on therapeutic results on one hand and the fast growing number of new compounds on the other require an assessment of the principal findings which have been established in clinical research in general and in our own investigations at the Delaware State Hospital in particular.

The most characteristic and unique effect of neuroleptic drugs concerns their action on psychiatric disorders which manifest themselves in one way or another as hypermotility, increased emotional tension and hypernormal drive. This action consists of the reduction of psychomotor activity which results in diminished initiative and blunted emotional reactivity. Obviously, such effects must be most apparent, even dramatic, in a previously restless and disturbed patient while least noticeable in the already retarded and passive individual. The pharmacological action transpires at the subcortical level and involves various functional systems of mes- and diencephalon. While specific aspects of their action remain yet uncertain, clinical observations have provided much evidence of the manner in which these drugs exert their therapeutic effects on psychiatric disorders. One of the perplexing discoveries in the early stages of investigations was the fact that chlorpromazine and reserpine produce Parkinsonism, an accomplishment not previously encountered with chemotherapeutic methods. Initially, many regarded this extra-pyramidal syndrome as a complication in the nature of a toxicity-reaction and claimed a relation to overdosage and prolonged medication. Our own observations indicated that we were confronted with a regular effect of neuroleptic drugs, subject only to individual variation, reflecting the inhibitory action on psychomotor behavior. This impression was strengthened by reports of European investigators who described fine motoric changes, for example in handwriting samples, in the majority of all treated patients, whereas the more pronounced syndrome of Parkinsonism developed in only a minority. The significance of Parkinsonism must be seen in the fact that it demonstrates the involvement of the strio-pallidal system. It is this system which regulates psychomotility. We are familiar with the most notorious dysfunctions such as hyperkinesia in chorea and hypokinesia in paralysis agitans. We know that this system mediates volitional, affective and intentional functions. The therapeutic effect of chlorpromazine, reserpine and other phenothiazine compounds must be understood in terms of their influence on cerebral mechanisms which regulate psychomotility functions.

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The emergence of psychomotility in relation to pharmacotherapy necessitates new therapeutic criteria and techniques. One of the victims of this psychopharmacological mode of action is the diagnostic classification as basis for therapeutic indications; another is the notion of standardized administration and dosage. The diagnostic arrangement of most mental disorders rest on our knowledge of symptomatology, course and outcome of disease patterns. It has no etiological implications. Therapies are directed at specific symptom patterns; not disease entities. Electro-convulsive treatment proved highly effective in depressive as well as in manic states. Insulin-coma therapy modifies the course of certain phases in schizophrenia. While neither treatment is specific from a viewpoint of etiology, the nature of which remains unknown, both are prevailingly effective in manic-depressive or schizophrenic psychoses.

Neuroleptic action, by contrast, effects symptom patterns characterized by increased activity—whether directed inward or outward. It therefore becomes essential to define therapeutic criteria in terms of psychomotility patterns, not on grounds of diagnostic entities. A depressive state characterized by apathy and retardation differs significantly from a depression with agitation and panic. Two schizophrenic patients with paranoid ideation may be matched for diagnosis, age, sex and length of illness as has been done time and again in experimental studies. Yet, if one is withdrawn and passive and the other aggressive and explosive, they have nothing in common in as far as neuroleptic medication is concerned. It is neither paranoid ideation nor length of an assumed disease process which has bearing on the question of eligibility for neuroleptic treatment.

Thus, we have to define behavioral symptoms which are sufficiently concrete and observable to be used as measurements of therapeutic effectiveness. In our research protocols we elaborate what I call "target symptoms". The application of this target-directed method enabled us early in 1954 to recognize the danger of chlorpromazine and reserpine medication in depressive psychoses. It became progressively more plausible that personalities with hypochondriacal, neurasthenic and anxious traits would respond unfavorably to neuroleptic drugs which reduce still further their already depleted reservoir of initiative and energy. The depressive reactions, therefore, so often observed in the treatment of neurotic or psychosomatic patients, need not be ascribed to toxic factors or be interpreted as unpredictable complications. These effects, it would seem, are as much in line with the drugs' physiological action as is hypoglycemic shock as a result of insulin medication if given to a person without hyperglycemia. In both instances, the pharmacological effects are reductive. The prevailing level of blood sugar as well as of psychokinetic energy must serve as determinants for establishing a therapeutic need. The unfavorable response in either case, then, can be regarded as error in application rather than a complication of therapy.

The notion of standardized dosage schemes has never been more futile than in the case of neuroleptic drugs. There are no variables which can be relied upon to correlate amount of drug with effectiveness of action. The need for individualized methods of medication constitute a major headache in research design. Comparative studies of different drugs, double-blind studies and other experimental methods which depend on strict control of few variables, have proved less informative than uncontrolled studies which permit full exploration of dosage range. There can be little doubt that the present popularity of tranquilization has developed into a placebo enterprise of fast proportions since the medications prescribed for average office patients remain below the therapeutic level. This may be fortunate for the multitude that does not require such medication in the first place. In cases of need, however, inadequate administration precludes a favorable response and obstructs improvement.

The question of dosage is mainly a question of the accomplished modification of the target symptoms. Toxicity is primarily a problem of individual susceptibility. The manner of administration, i.e. the rate of increase rather than the actual daily amount of drug, seems important. There is no evidence to substantiate correlations between dose levels and various somatic reactions. While it is certainly true that no undesirable reactions will be observed with small doses, it is also a fact that these "safe" doses remain below the level of therapeutic effectiveness.

What has been pointed out thus far is relevent to neuroleptic treatment in general. Different neuroleptic drugs vary considerably in potency, action and effectiveness. This has bearing on their suitability for minor or major types of therapy.

Chlorpromazine (Thorazine) and reserpine (Serpasil) differ markedly in mode of effectiveness. The rather prompt action of chlorpromazine in contrast to the more gradual, cumulative action of reserpine favors the former in as far as over-all therapeutic effectiveness is concerned.

One aspect which I should like to explore, concerns similarities and differences in the drugs' influence on extra-pyramidal functions. It is characteristic for both that clinical effectiveness can be evaluated by the degree in which they reduce psychomotor activity. There is no definitive line of demarcation between therapeutic quanta of reduced activity and the first emerging symptoms of Parkinsonism. It would be difficult, if not physiologically impossible, to obtain results in neuroleptic treatment without obtaining some measures of hypokinesia, indicated by diminished drive and motor elasticity. What we define as Parkinsonism includes postural rigidity, gait disturbances, salivation, cog-wheel phenomena and occasional oculogyric crises in various combinations and degrees of severity.

The incidence data of Parkinsonism as defined were as follows:

| | | |
|---|---|---|
| Chlorpromazine | (645 cases) | : 71 (11.0%) |
| Reserpine | (179 cases) | : 29 (16.2%) |

The higher incidence with reserpine is perhaps not as significant as are differences in the clinical picture. Reserpine-Parkinsonism is often more severe. Rigidity can be extreme to the point of board-like immobility of the entire body. Salivation is frequent. Even more characteristic is the development of acathisia, a syndrome characterized by motor restlessness, insomnia and sensation of pulling or drawing in the extremities and feet. This paradoxical increase of restlessness resembles the acathisia syndrome as described in association with idiopathic paralysis agitans and postencephalitic states. Our data on Parkinsonism show clearly that the greater majority of patients develop Parkinsonism during the early phase of treatment. Neither dose level nor duration explain why some patients respond with the more pronounced extra-pyramidal manifestations while others on much higher doses do not. Individual variation, thus, is conspicuous. Our search for constitutional differentials revealed some significant findings. The incidence in women, regardless of age, disorder or drug, surpasses that in men by 2:1.

*Chlorpromazine*

| Total Number of Patients | | Patients with Parkinsonism | % of Total Group |
|---|---|---|---|
| Male | 281 | 19 | 6.8% |
| Female | 364 | 52 | 14.3% |
| | 645 | 71 | 11.0% |
| | | *Reserpine* | |
| Male | 82 | 9 | 11.0% |
| Female | 97 | 20 | 20.6% |
| | 179 | 29 | 16.2% |

The impact of neuroleptic drugs on neuro-endocrine functions in women is well established. Pseudo-galactorrhea, menstrual irregularities and marked weight increases are frequent concomitants in chlorpromazine therapy. The suppressing influence of reserpine on ovulation has also been shown in experimental studies with rhesus monkeys. The question remains as to how the responsivity of neuro-endocrine and extra-pyramidal systems is linked.

Experiences with other phenothiazine compounds, among them promazine (Sparine), mepazine (Pacatal) and proclorperazine (Compazine), provide grounds for the assumption that neuroleptic potency is reflected in a high incidence of extra-pyramidal reactions. Promazine (Sparine), the non-chlorinated sibling of chlorpromazine, is a considerably weaker drug which appears least effective in neuroleptic treatment. In our study of 60 patients, Parkinsonism occurred only twice (3.3%).

In November, 1955, we commenced investigations with a new compound, trial preparation SKF #4657. Preliminary studies in France had indicated that this drug seemed considerably more powerful than chlorpromazine. From the outset it became apparent that it surpassed chlorpromazine not only in potency but caused extra-pyramidal symptoms associated with the highest incidence of Parkinsonism. This drug, now known as proclorperazine (Compazine), is highly effective in the treatment of all hypermotility syndromes. Its action is rapid. Dosage requirements are approximately 1/3 or less than those of chlorpromazine. I stated in a previous report on the clinical effectiveness of proclorperazine that I consider it the drug of choice in the treatment of all acute mental disorders with severe agitation, excitement, toxic delirium or violence. Our investigational series now includes 143 cases.

What I want to discuss here concerns the observed intimate association between intensive effectiveness and extra-pyramidal reactions. Parkinsonism occurred in 67 cases, an incidence of 46.9%. Nor is this all. Special neurological syndromes developed in 11 patients which differ from Parkinsonism by various dyskinetic manifestations. One peculiar syndrome consists of involuntary protrusion of the tongue, with tonic contractions of cheek, jaw and neck muscles. Another syndrome combines torticollis with oculogyric crises. In other instances, the patient's neck is bent backward due to tonic spasms of neck muscles. A tetanus-like picture developed in one case. The patient was in a general state of maximal rigidity, perspired profusely and had difficulty in talking and breathing. Alarming as these syndromes appeared at first they could be quickly resolved by injections of 7½ grains of caffeine with sodium benzoate. Because of their early onset during the first days of treatment, the manner of increase in medication may well have been a contributory factor.

Addition of anti-Parkinsonian agents in cases of drug-induced Parkinsonism has proved quite effective in reducing rigidity and tremors to a point where they do not interfere with continuation of therapy.

It seems quite possible that compounds may be developed which will retain neuroleptic effectiveness without causing pronounced extra-pyramidal symptoms. The fact remains that what seems psychopharmacologically specific about these drugs and what separates them from conventional sedatives, cannot be divorced from their action upon the subcortical motor system. We are, therefore, compelled to judge therapeutic effectiveness in a psychomotility frame of reference. The therapeutic process, then, is not one of sedation but of selective inhibition of psychomotor activities. Moreover, no distinction can be made between minor, or office, and major, or hospital, treatment in as far as therapeutic criteria are concerned. As in the case of insulin or digitalis, the disorders to be treated vary in degree, not in kind. Many psychiatric syndromes can be seen as hypertrophies of varieties of temperamental make-ups and personality patterns. For this reason, therapeutic targets retain a certain identity regardless of the degree of severity.

I should like to make this final observation. The perhaps most overworked cliche of our time is anxiety. This amorphous, all inclusive concept has preserved little, if any, clinical meaning. Anxiety has been credited with being the cause of every known human failing. It seems to me that there can be no more specific a clinical approach to anxiety than to human nature. This leaves us no choice but to conceive anxiety in terms of behavioral symptoms some—but by far not all—of which constitute suitable targets for treatment with neuroleptic drugs.

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# MOTIVATION TO MURDER: A CASE REPORT

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This is a case report on "X", a young man who was referred to the office of the State Psychiatrist for examination following the murder of his wife and her paramour. Although the study requested was intended only to establish responsibility, it was felt after preliminary examination that the court could be assisted by a study of the unconscious motivating factors behind the alleged murders and, although the time factor necessarily limited the amount of study which could be done, this added objective was undertaken with the thought of establishing a pattern for future similar examinations.

"X" was a Negro, age 29, married, the legal father of one child, who admitted to having killed his wife and her paramour. He had killed his wife on the highway and had then located the motel where her child and her paramour were staying and killed the latter.

Background information revealed that he was the only son in a family of five siblings and that his father had deserted his mother when he was still an infant. He was raised by his mother and from the age of 6 by a step-father until his mother's death when he was 15 years old. His step-father was an alcoholic and he related to the examiner that he had frequently seen his step-father beating his mother, although he regarded him as a very nice person when sober. He described his mother as warm and generous, though quick tempered in her discipline. Following his mother's death, he lived with friends and relatives. He also left school, at that time, and went to work doing unskilled labor.

"X" met his wife when they were both in grade school and though they continued to go to the same school until she transferred to a senior high school, he never went out with her until her last year in school. He felt that she was socially superior to him, that she was "too good for him" and he could not aspire to her. His brief relationship to her was soon terminated by a larger boy who was later to become his wife's paramour and his victim.

He failed to finish high school as noted above, went to work, and when he was old enough, went into the Navy.

Upon his return on furlough, he quite accidentally met the same girl, learned from her that she was pregnant and was also told by her of the circumstances of her pregnancy. He promptly offered to marry her and was equally promptly rejected by her although she did change her mind within the next few days and just before he returned to his ship, they were married. Following this, he wrote to her repeatedly, but did not hear from her and, when six months later he again returned to the community, he found her in the hospital having had her baby the day before. She did not welcome him and appeared upset by his return.

They went into housekeeping and though "X" was a steady worker, his income was not great and there were numerous disagreements with numerous separations and many episodes of infidelity. Apparently, his wife made little effort to conceal the infidelity and refused to live with him. However, she became pregnant and then returned to live with him. Apparently, there were several repetitions of the same pattern, each time his wife left him, became pregnant and then returned to him. Each time, too, he was grateful for her return and accepted her in spite of her delinquent behavior.

It was of particular significance that in spite of the fact that he knew that his wife had conceived each one of these several pregnancies while separated from her, he referred to each one of them as "his own" and reacted with considerable feeling of loss when his wife was unable to carry the pregnancy through the period of gestation. His use of denial as a defense was also evidenced by the fact that he insisted that the child they did have was his own, although he had told us of the child's illegitimate conception.

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"X" repeated the statement that when his wife was not pregnant, she rejected him, but when she became pregnant, she always came back to him and one got the feeling that he was using this as a defense against his own feelings of inadequacy. At the same time, he commented that she rejected him sexually. In spite of all these traumatic experiences, he continued to feel inferior to and dependent on his wife. It was important to him to be able to feel useful to her.

A final event leading up to the murder began with a brief attack of physical illness on the part of "X" during which his wife, followed her previously established patterns of behavior, deserted him, leaving him sick in bed to his own resources with some help only from the young woman who was rooming in the home. His wife had arranged to remove some of the clothes from the home and did not return to the home again.

On the day of the crime, "X", who had not been working because of his illness, learned the general whereabouts of his wife and went to find her. He had a hunting knife in his car which he had obtained only the day before from a friend. When he arrived at the area where he expected to find his wife, he removed the knife from the car and concealed it on his person. His reason for doing this was that "he was afraid that if the police saw the car standing, they might search it and find the knife and so might charge him with carrying a concealed deadly weapon." Almost immediately, he ran into his wife as she was emerging from a small country store. He had attempted to persuade her to return to him, just as he had done on numerous previous occasions, and met with the same kind of rejection. His wife finally threatened to call the "troopers" (State Police) if he did not leave her alone. It was apparently this threat which produced anxiety on the part of "X". He pointed out to his wife that he had the knife on him and that if they arrested him for carrying the knife, he would lose his job. Following this, his wife grew increasingly aggressive and started to the store where she could find a telephone. She actually turned her back on him in the process of returning to the store. The murder resulted.

He then ran to the motel where he had learned his wife had been staying, ran into the paramour and engaged in a brief conversation with him, was threatened by the latter and subsequently killed him.

Although there were two people killed, and although the second killing followed the pattern very similar to the first one and although a brief period of time intervened between the first and the second killings, we felt it advisable to consider the two killings as a single continuous event. Certainly, it would appear that the acquisition of the knife, the search for his wife, and the final double killing suggested premeditation. Quite certainly, too, this circumstantial evidence would have been very convincing of intent for the average jury. And equally certainly there was no evidence to suggest that "X" was the kind of person who could plan and carry out an aggressive act of this type, though there was much to suggest that he could do this kind of a thing as a result of an explosive impulse.

The psychologist's conclusions on examining this man were in part as follows: "Social awareness and social judgment are adequate —objectivity and reality demands are, at times, bypassed. The patient is a passive, aggressive, immature and inadequate personality. Energy is primitive, pressing and impulsive. He attempted to compensate for tremendous feelings of inferiority and inadequacy by retaliating. Outbursts are used for this purpose in this otherwise passive individual. In an endeavor to deal with his inner turmoil and extensive sexual conflict, severe repression, avoidance, and immobilization are utilized. In the light of his difficulty, his defenses are severely strained." The examining Psychiatrists in the several interviews with "X" were impressed by his extreme passivity and dependency and by his repeated repetition of the story as noted above. Certainly, he impressed the examiner of the fact that there was no conscious motivation for the crime. The unconscious motivation, however, was our concern. The role play by his wife's threat to "call the troopers" and later by his second victim's threat to "punch him in the eye," both castration threats, had to be considered as the precipitating factors in both situations, although the second threat was probably the lesser of the two. Certainly, the reactivation of earlier patterns of anxiety by these threats strained the resources of his defenses and resulted in the explosion.

We felt then that this murderous outburst was the result of a life-long pattern of trauma and that these data could be useful to the court in making a final disposition of the case.

We, therefore, informed the court that "Mr. 'X' had been under tension over an extended period of time and that the numerous frustrations which he had suffered at the hands of his wife throughout his (married) life and more particularly the rejection in the sexual area and later, at a more regressive level (her refusal to take care of him when he was sick) had produced a situation which his weak ego could not control. We saw nothing in the examination to indicate that Mr. 'X' was consciously motivated to kill his wife or his rival." It is to be noted that though we felt Mr. "X" was not psychotic and that he could legally be held responsible for his act, that we considered his loss of ego control as a significant factor which perhaps might at one time have been classified as temporary insanity. Perhaps, too, the "wild beast" concept might have been considered, but we wanted to avoid any introduction of the thought of insanity.

Finally, it should be added that it was our feeling that this material was useful to the court and was used by the court in making the final disposition—the sentencing of Mr. "X".

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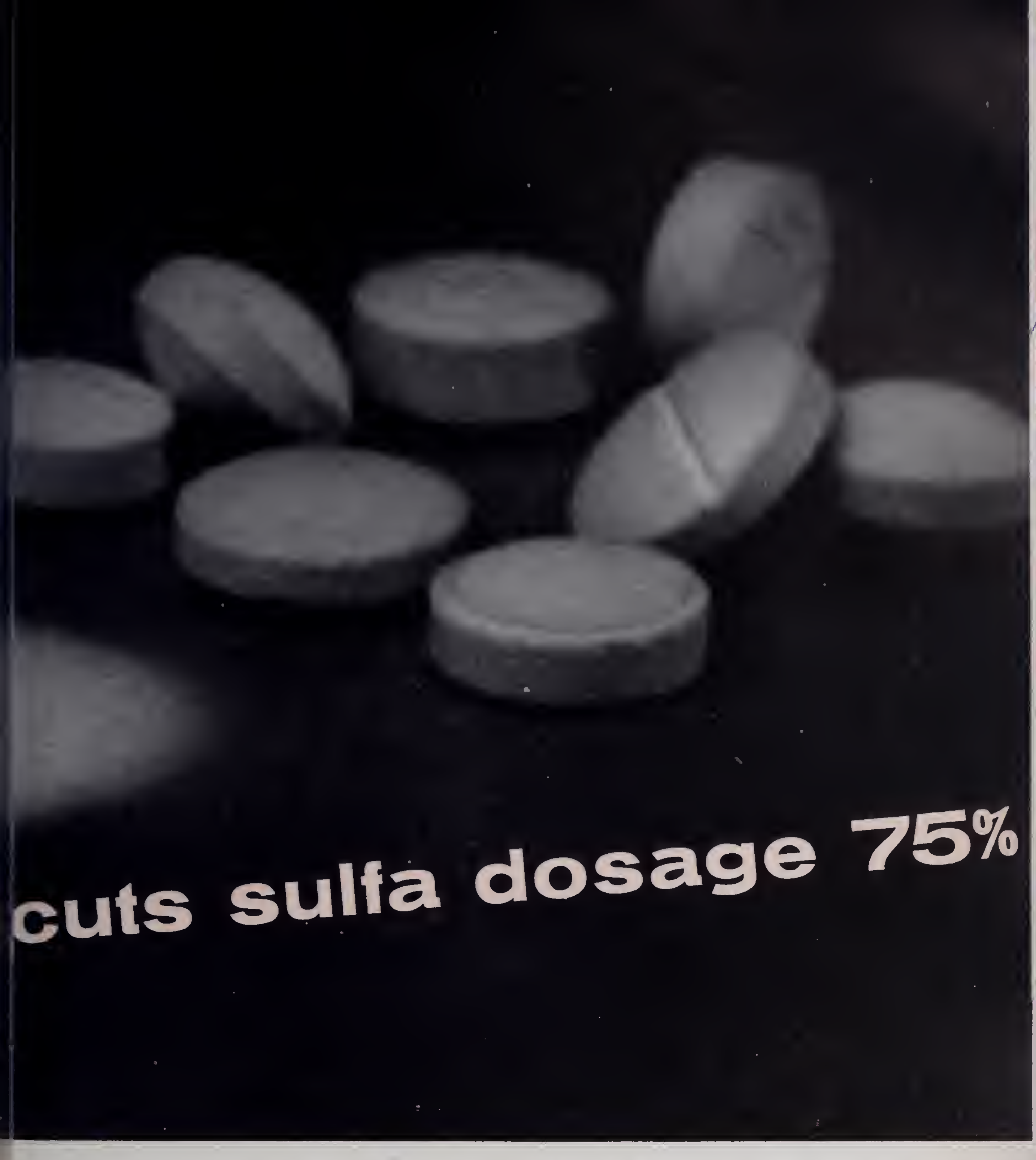

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(1) Boger, W. P.; Strickland, C. S. and Gylfe, J. M.: Antibiot. Med. & Clin. Ther. 3:378 (Nov.) 1956.

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# CONTRAINDICATIONS FOR ELECTRIC SHOCK TREATMENT

## II The Need For Re-Evaluation

H. George DeCherney, M. D.* and

Jose Vazquez, M. D.**

In 1951, the senior author reported two cases whose cardiac conditions caused them to be considered as poor physical risks for electro convulsive treatment (EST).[1] Because EST was strongly indicated in these patients, the treatment was performed and their cardiac conditions were evaluated by means of electrocardiograms after the course of EST treatment. In both these cases no further cardiac damage was noted.

This study presents three such "poor physical risks" who were subjected to EST. Electrocardiograms were done on these patients before and after each EST and repeated two weeks following the course of therapy. The Reiter machine, Model R.C. 47D—Number 415 was used to induce convulsions and no sedation or muscle relaxant was given to the patient prior to treatment.

### Case 1:

This is a 72 year old man who was admitted to this hospital on March 6, 1957 because of depression. The history revealed that the depressed state began in November, 1956. At that time the patient stated, "I am not much good, no use taking me to the hospital." On admission he was negativistic, refused food and medication and was markedly agitated. He stated that he had lost 80 pounds since Christmas, was unable to sleep and feared that he had cancer. The patient spoke in a monotone which was barely audible. He complained of constipation, had feelings of unworthiness, and was preoccupied with personal and financial worries. The diagnosis was psychotic depression. An electrocardiogram was taken and indicated a complete right bundle branch block. He was given a course of six ESTs (two per week) following which he began to socialize, to eat better and to gain weight. The negativism and depression present on admission was lifted. The patient was placed on trial visit two months later.

### Case 2:

This is a 67 year old man who was committed to this hospital on March 14, 1957 because of depression. This was his third depressive episode, his first occurring when he was 52 years old. His second depression had necessitated his first admission to Delaware State Hospital. The patient was suffering from bronchitis and bronchiectasis and his history revealed that he had numerous obsessive complusive traits. He was plagued by many scruples and was markedly tense and anxious. A diagnosis of involutional psychotic reaction was made. One-fiftieth of a grain of atropine and 7½ grains of aminophylline was given before treatment. An electrocardiogram done prior to treatment showed first degree AV block and premature auricular contractures. There was a bigeminal rhythm evident. An x-ray of the chest revealed flattening of the dome of the right diaphragm. There was considerable increase in the bronchovasicular markings at the right base with some flocculent infiltration suggestive of passive congestion. The patient had six ESTs (two per week) and he appeared to be free of that "awful depression". His ruminations seemed to have been dispelled and he slept well without sedation. He was discharged from the hospital nine weeks following admission.

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* Senior Physician-Psychiatrist, Delaware State Hospital.
** Resident in Psychiatry, Delaware State Hospital.

### CASE 3:

This 76 year old patient was included in this study because of his age. On admission (June 4, 1957) he was agitated, restless and predominantly depressed. His conversation was somewhat rambling and had a vague tendency to be flighty. He had had two previous psychotic episodes, one of which required hospitalization at St. Elizabeth's Hospital, Washington. The patient spoke about guilt feelings in connection with his sexual activities. A diagnosis of manic depressive reaction, other types (mixed), was made. An electrocardiogram done a day after admission revealed a "notching of the P Waves" in Lead II with early left ventricular hypertrophy. Following five ESTs the patient showed marked improvement in his mental condition. He was much less depressed, no longer confused and much less agitated.

### RESULTS:

1. Heart rate was within normal range before treatment was initiated.

2. The pre-treatment heart rate rose with each shock treatment.

3. As the pre-shock treatment heart rate rose, there was an increase in the premature ventricular systoles which suggests that the myocardial irritability increased with the pre-shock tachycardia.

4. Once the premature ventricular contractures became evident on the electrocardiogram they remained until treatment was terminated.

5. There was no evidence to suggest that the spacing of treatment days affected the frequency of ventricular extrasystoles.

6. The cardiac status as evidenced by the electrocardiogram returned to its pretreatment state. This revealed that no further cardiac impairment had occurred.

### SUMMARY:

The case histories of three psychiatric patients are presented. Each of these "poor physical risks" were given EST. The study of the electrocardiograms on these patients, taken before and after therapy, revealed that no further cardiac impairment had occurred.

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# CHLORPROMAZINE AND DIETHYLSTILBESTROL IN SEVERE MENTALLY DEFICIENT PATIENTS WITH MALIGNANT MASTURBATORY PROBLEMS

Hal W. Geyer, M. D.*

*A Case Report*

Malignant masturbatory problems are prevalent in individuals with severe mental deficiency. The establishment of this habit is unlike the patterns established in patients of normal intelligence with psychosis. In the former it is a habit development with concentration on the genitalia. In the latter it is a realm of fantasy.

At this hospital, it was found that the administration of Thorazine (chlorpromazine) with diethylstilbestrol was very effective in the alleviation of this condition among the male patients. The following are case reports on two patients, brothers, thirty-five and thirty years of age respectively:

These patients were admitted to this hospital in February, 1939, because masturbation was the primary factor in their makeup. Both are severely retarded, in the old classification of idiot level. The elder formulates an S.Q. of 5; the younger an S.Q. of 7. Both patients had resided in the cottage which was the residence of the most emotionally disturbed and untidy patients.

History reveals that for fifteen years both patients demonstrated a malignant masturbatory problem which was impossible to alleviate even by close supervision by the attendants. On several occasions they were admitted to the Medical Center for intensive treatment consisting of sedatives and occupational activity in an endeavor to alleviate this condition. All treatments were of no consequence and the procedure followed in the cottage was resumed at the Medical Center. This display was of such intensity that for the benefit of the other patients, nurses, and attendants, they were returned to their respective cottage. The reports and complaints from the cottage attending staff contained a daily synopsis of their activity and it was reaching proportions whereby the entire cottage was disturbed the majority of the time. These two patients were constantly engaged in this self-abusive activity, and upon completion would shout and scream to the extent that they could be heard in the adjacent cottage. When the process was not completed they would become very autocombative—pick up benches and throw them, pull mattress off of bed and pick up bed and thump it on the floor, emitting loud screams.

Physical examinations were done on both patients. The younger boy presented a thin, asthenic type of individual; the older a robust, slightly obese individual. This examination revealed no pathology contraindicating chemotherapy. Laboratory findings were within normal range; the blood pressure was normal.

Simultaneously, both patients were administered 50 mgs. of Thorazine and 2 cc. of procaine, intramuscularly, with an order of 50 mg. four times daily with 5 mg. of diethylstilbestrol immediately upon arising and repeated at bedtime. Within three days the results of this medication showed a marked improvement in their behavior. The masturbatory process and the accompanying disturbed and emotional factors subsided. Within ten days there was a total absence of the above described procedure. Within two weeks they were transferred to a cottage with patients with the least amount of emotional and behavior problems. The patients were later admitted to Medical Center for study from a psychiatric and physical point of view. Laboratory findings of both patients were within normal range. The blood pressure remained normal and there was no evidence of any side effects from the chemotherapeutic program. In fact, the patients appeared to be somewhat improved, physically; better appetite, sleeping well, and vestiges of improved tidiness were evident. They were returned to the above mentioned cottage. They were examined periodically for any side effects from medication and none were found. They are on a maintenance dosage of 25 mg. Thorazine, three times daily and 5 mg. of diethylstilbestrol per day. In approximately two months one began to show signs of slipping into the old habit. His Thorazine was increased to 50 mg. three times daily and the diethylstilbestrol was increased to 5 mg. twice daily with excellent results. In two weeks he was returned to the minimum dosage as aforementioned.

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* Acting Clinical Director of the Hospital for the Mentally Retarded.

In summarizing this case, it is grossly evident that Thorazine and diethylstilbestrol are indicated specifically in the above described problem. It also indicates that the emotional and behavior problem embraced in this affliction has been alleviated. As in the other papers I have written on the effects of Thorazine (chlorpromazine) on mentally deficient patients, it is remarkable the results obtained with an exceedingly low dosage.

It may be added that their loyal and faithful mother visited her sons, without fail, each week. She would put them in the car and take them to a secluded spot and prepare a lunch for them. She definitely had to take them to a secluded spot due to the embarrassment attached to the situation. The mother was interviewed six weeks ago and she was very pleased with the condition of her sons. She has been able to take them on afternoon trips and has frequented some of the better restaurants, with no embarrassing situation arising.

No side affects were noted within the entire framework of treatment. There was no dulling of the sensorium and no deviation in the following psychiatric and psychometric evaluation. The patients' activities have been channelled into recreational activity comparable to their mental capacity and at the time of this writing they are maintaining very well.

# THE UNSTABLE T-WAVE SYNDROME: A CONFUSING FACTOR IN CARDIAC EVALUATION

David J. Reinhardt III, M. D.*

The evaluation of complaints possibly due to heart disease is not generally a difficult task. When electrocardiographic changes are present in the RS-T segment or T-wave portion of the complex it is usually interpreted by the average physician as suggestive evidence that organic change or anoxia is present in the myocardium. It is the purpose of this discussion to call attention to the unstable T-wave syndrome, which when present causes confusion in cardiac diagnosis and often results in the establishment of iatrogenic heart disease.

It has been known for many years that T-wave changes may occur in certain individuals in the absence of heart disease.[1-5] Various conditions such as electrolyte imbalance, hyperventilation, and autonomic nervous system instability have been recognized as causitive factors in abnormal T-wave patterns. Various mental states[4], and in particular those clinical pictures which manifest hypochondriasis, anxiety and vasomotor instability[6] have been shown to be particularly associated with the unstable T-wave syndrome. This syndrome consists of alterations of the RS-T segment and/or the T-wave in all or some of the usual electrocardiographic leads. These changes may be transitory, continually changing or persistent. Proof of the existence of the syndrome in a given subject is based upon demonstration of specific change following various functional tests.

Electrocardiographers in general hospitals interpret tracings with limited clinical data available regarding the patient. Although these physicians are aware of this syndrome, it is somewhat of a rarity and as a result it is usually not mentioned as a possibility in the interpretation. This in turn leads the unwary clinician, caring for a patient with chest pain, to consider the electrocardiogram abnormal and conclude that the diagnosis is coronary artery disease. Prior to this event the patient was anxious and hypochondriacal; thereafter he is convinced of the validity of his vague functional symptoms and an iatrogenic cardiac invalid is the result. The task of re-educating the patient to the true nature of his condition when this error is discovered is one which rarely meets with success.

The following case is an example of the unstable T-wave syndrome which was accidently discovered following electronconvulsive therapy in a mental institution.

### *Case Report*

The patient was a 51 year old white woman who was admitted to the Delaware State Hospital in April 1957. The diagnosis was involutional depression with marked anxiety and hypochondriasis. She was known to have had a "nervous breakdown" at the age of 32 and again at 44. The menopause had occurred six months prior to admission. A history of vague, fleeting precordial pains had been present for many years and occasional episodes of substernal pressure lasting ten or fifteen minutes while at rest, but never with exercise, had been experienced for the same period. Eight months prior to admission the patient and her husband had the unsettling experience of having a friend die suddenly and unexpectedly in their presence. The patient, worried by this experience, saw her physician and an electrocardiogram was done which was abnormal. Repeated tracings showed alterations in the T-wave pattern. The patient was referred to a physician in another city and was hospitalized for study in December 1956. Further T-wave changes occurred during the following month in the hospital. The patient was discharged after five weeks with the diagnosis of a posterior myocardial infarction and the menopausal syndrome.

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* Cardiologist and Assistant in Medicine, Delaware State Hospital.

Physical examination at the Delaware State Hospital showed a thin, markedly depressed and agitated female. Optic fundi were normal. The heart size was normal and no murmurs were present. The blood pressure was 135/88 mm. of mercury. The pulse was 100 per minute and regular. The remainder of the examination showed no abnormalities.

Laboratory evaluation included a red and white blood cell count, hemoglobin level, blood sugar, blood urea nitrogen, urinalysis and serological tests for syphilis. These studies were within normal limits or negative. Chest x-ray showed a normal cardiac silhouette and clear lung fields. The electrocardiogram was interpreted as an abnormal tracing showing flat T-waves in lead I and aVl and large P-waves in lead II. The T-wave changes were consistent with a diagnosis of coronary artery disease (Fig. 1). The possibility of pulmonary heart disease was considered but was thought to be unlikely due to lack of clinical confirmation.

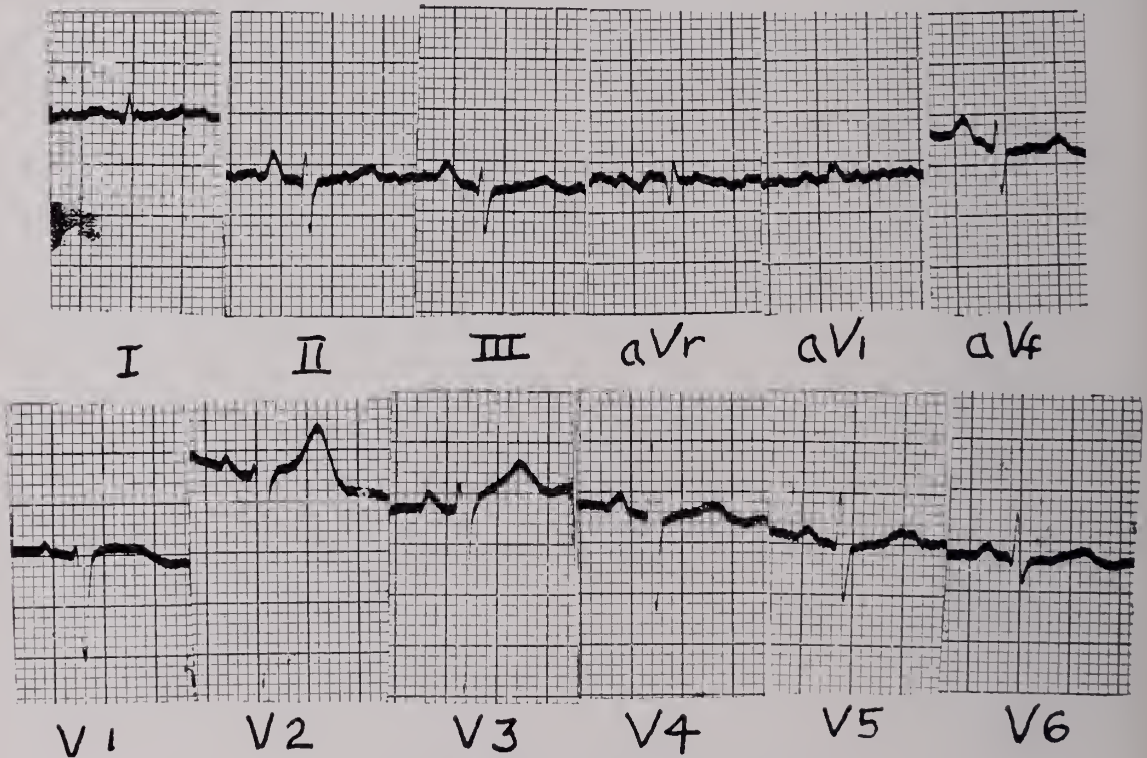

Figure 1. Electrocardiographic tracing taken on admission. This is identical with each pre-treatment tracing.

It was decided that the only form of treatment which would improve the mental status of the patient was electroconvulsive therapy. This decision was made with full knowledge of the abnormal electrocardiogram and history of heart disease. Special precautions were taken at each treatment. These included the presence of a cardiologist and a pre- and post-convulsive electrocardiographic tracing. The tracing was taken immediately at the end of the convulsive episode (Fig. 2). It was noted

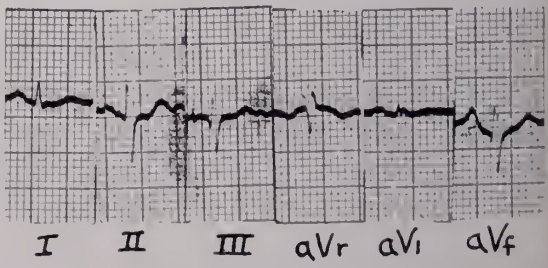

Figure 2. Post-treatment tracing Note improvement especially in the T-waves of leads I, II, and aVr as compared to Figure 1.

after the first treatment that this tracing showed a return of the T-waves to the normal state. On each successive treatment, of which there were six in a two week period, the pre-convulsive tracing was again abnormal and the post-convulsive tracing was normal. The electrocardiogram at the end of the course of treatments was read as abnormal and identical with the admission tracing.

Because of the immediate temporary return to the normal pattern following each therapeutic convulsion, it was suspected that this patient was an example of the unstable T-wave syndrome.

### *Further Evaluation*

The hospital records of the December 1956 admission were reviewed and it was found that the only additional electrocardiographic abnormality was T-wave flattening and slight inversion of the lateral unipolar chest leads.

In an effort to further substantiate the diagnosis of the unstable T-wave syndrome several other functional tests were performed. A standing electrocardiogram accentuated the abnormality of the T-waves in all leads, including even those which had previously been normal (Fig. 3). A Valsalva maneuver while continuously recording lead I showed a prompt upward deflection of the T-wave at the end of the forced expiration (Fig. 4). An exercise tolerance test was negative. A ballistocardiogram was normal.

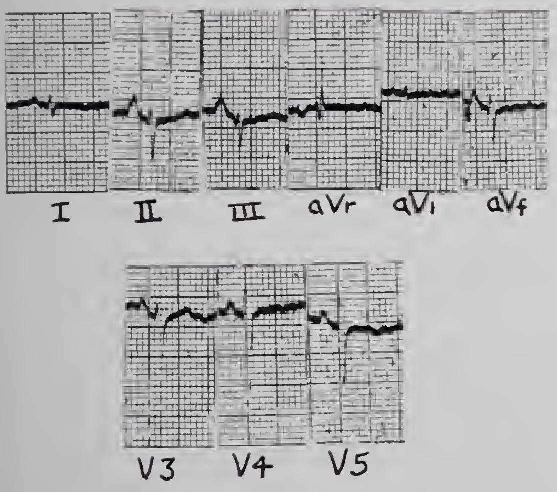

Figure 3. Electrocardiogram taken with the patient in the standing position. Note T-wave changes in all leads as compared to Figures 1 and 2.

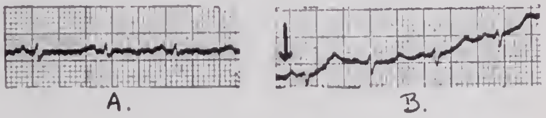

Figure 4. Valsalva maneuver. Lead I recorded with the patient in the standing position. Strip "A" recorded prior to forced expiration. Strip "B" shows arrow indicating termination of the maneuver and the resulting improvement of the T-waves in the following complexes.

### *Discussion*

There are other tests which can be used for identification. Administration of large doses of potassium will often return the T-waves to normal. Probanthine intravenously will duplicate this.[4] Hyperventilation for a period of ten to twenty seconds will quite frequently give marked inversion of precordial T-waves. This can be blocked by prior treatment with probanthine. Probably the simplest clue to the presence of this syndrome is the change in amplitude of the T-waves out of proportion to the shifting electrical axis of the heart during deep respiration.

In the case presented the diagnosis was made by observing the change in T-waves following electroconvulsive therapy. The therapeutic convulsion with the tonic and clonic phases which often progress to cyanosis is itself a "super" Valsalva maneuver.

A most important factor in consideration of the unstable T-wave syndrome is that the syndrome can exist in the presence of coronary artery disease. The presence of T-wave instability does not in any way rule out organic heart disease. However, when organic heart disease is present the value of the electrocardiogram is greatly limited. Any RS-T or T-wave changes which develop cannot be relied upon as diagnostic evidence of a change in the blood flow to the myocardium. The widely used exercise tolerance test, devised by Master[7], is valueless when T-wave instability is present. Bixby[9] in a series of 75 cases of this syndrome found every patient to have a positive test by Master's criteria. Of this group one third had obvious organic heart disease, one third were suspected of having organic disease, and one third were free of heart disease.

One helpful aid in ascertaining the presence or absence of organic disease is the ballistocardiogram. A frankly abnormal ballistocardiogram is evidence of heart disease in most cases. A normal tracing suggests that the heart is normal. Borderline tracings are unhelpful.

The explanation for the syndrome is not completely understood. Most investigators feel that imbalance of the autonomic nervous system is the explanation. However, there is some controversy as to whether the sympathetic or the parasympathetic impulses cause the abnormalities. Wasserburger[8] believes the reversion to normal and the blocking of the hyperventilation changes following probanthine is strong evidence to support the parasympathectic or vagal concept. Of the opposite opinion are Wendkos and Logue[3] and Bixby[9], who believe it is due to increased sympathetic tone. Sympathetic stimuli and sympathomimetic drugs intensified the abnormalities in their experimental work. Lepeschkin[10] agrees with Wendkos and Bixby and suggests that sympathetic stimuli reduce the coronary blood flow temporarily. Packard[11] and colleagues reviewed 1000 electrocardiograms in young healthy aviators. A follow up study ten years later, which was 96% complete, showed no evidence of heart disease in any of the subjects who had RS-T segment and T-wave alterations at the time of the initial study. If Lepeschkin's theory were correct, one would expect to find a significant number of these subjects with clinical coronary artery disease in the second evaluation. Further investigative work into the physiologic mechanisms of this syndrome is needed.

At present its main importance is for the clinician whose diagnostic conclusions of cardiac disease based on the electrocardiogram must be tempered by knowledge of this syndrome.

## *Summary*

A discussion of the unstable T-wave syndrome is presented for the purpose of alerting clinicians to recognize the syndrome and to prevent the inception of additional iatrogenic heart disease. Electroconvulsive therapy is not recommended as a diagnostic test for this syndrome.

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# A NEW CHILD STUDY LABORATORY

E. Paul Benoit, Ph.D.*

Governor Bacon Health Center

The Governor Bacon Health Center is about to see the completion of a Child Study Laboratory[1] for research on the behavioral characteristics of maladjusted children. This new facility is relatively small, and, according to current standards, certainly inexpensive; it is costing less than $15,000.00. However, it promises to present an exceedingly high per-dollar usefulness. For this reason the interested public will presumably appreciate a description of it and a general indication of the work it is expected to do.

The proximate objective of the Laboratory is to conduct research of a behavioral nature on the maladjusted children committed to the Health Center. A second major aim is to probe into the neurophysiological correlates of emotional behavior. In time, according to expansion plans that will hinge on the outcome of initial efforts, specific projects may incorporate the services of the Clinical Laboratory. At that point, research may become decidedly basic. It seems prudent, however, to start with the investigation of variables that are somewhat close to practicality. This type of inquiry is more readily understood, is more likely to win support for further studies, and obviously lends itself to an easier and sounder initiation of an extended research program.

The Laboratory has a consultation room which can be used for the clinical examination and evaluation of children by physicians and various medical specialists. It will also serve for interviews, psychological and educational appraisals, and also for individual psychotherapy. It has shelves, file cabinets, and closet space for the storing of books, data, correspondence, notes, reports, test materials, and equipment.

A second unit is for observation, especially of groups. This section comprises a play room (15 ft. by 18 ft.) in conjunction with an adjacent room (15 ft. by 8 ft.) from which the children can be observed or photographed, and sound can be recorded. A number of features call for comment.

Provisions had to be made for one-way vision observation. The usual devices were considered, but were found unsatisfactory because the best ones eliminate about 89% of the light, and hence practically rule out photography. To overcome this difficulty, a checker panel of thirty-six six-inch squares of black and cream was constructed; the checkers were laid out in three rows of twelve, from five to six and one-half feet from the floor. Eight of the black checkers are mounted on hinges and are thus removable. The entire room behind the checkers is painted the same dull jet black as the black checkers. As the panel is faced with two six-foot lengths of herculite glass (the extra thickness for sound-proofing), the reflectance thus provided camouflages the differences in texture arising from variations in distance when checkers are removed. To further diminish the chances of having observers or the camera catch the eye of anyone in the play room, the observers will wear black smocks, hoods, and gloves, and the camera will be mounted with a black shield. The effectiveness of this plan can be appreciated from the fact that, in the present set-up, an isolated white spot the size of a face is virtually invisible at about two feet behind the observation portholes.

The checker panel seemed likely to cause wonderment in the children. To offset its unusualness, an exact replica was built on the opposite wall. The result of this addition is that the panels now appear as balanced elements in the room. The use of black items such as a clock, closet hardware, wire figures, and silhouettes helps to make the black fit as an integral part of the color scheme of the room. Inquisitiveness will thus not be unduly stimulated.

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* Chief Psychologist, Governor Bacon Health Center, Delaware City, Delaware; Dr. M. A. Tarumianz, Superintendent.

[1] This is the first tangible achievement issuing from the funds ear-marked last year for research on emotionally disturbed children by the State of Delaware through the Board on Mental Health, Research, and Training.

The play room is furnished so as to give it an informal, relaxing atmosphere. In the center is a rectangular dropleaf extension table of hard maple finish. One end of the table is to be dropped, so as to discourage the children from sitting with their backs to the recording room. Ten matching chairs are to be disposed around the table and at random in the room. There will also be an upholstered sofa covered with tough leatherette, and two end tables. Two cricket stools will further help lend an atmosphere of informality to the room, and will provide reasonable opportunity for withdrawal behavior. Two custom-built closets have been placed in the corners on either side of the checker panel so as to keep the children out of the blind spots.

Other elements in the play room include a twelve-inch clock and a large-digit calendar so as to date and time each photograph. Two recessed four-tube fluorescent fixtures with diffusers supply adequate light (the equivalent of one thousand watts with incandescent bulbs). A 4 ft. by 5 ft. sight-saving board provides opportunity for self-expression. A three-quarter-ton window type air-conditioner has been installed. The room is painted in soft cream and peach colors. The thought behind such features as the latter three is to make the room attractive to the children so that they will come pretty much of their own accord, and will not need any goading or convincing. To this end, a supply of toys suitable for different age groups is being gathered. Furthermore, the room will be used for group meetings and also for individual interviews. It is hoped that this practice will create the impression that this room is simply the usual place for the children to meet. Accordingly, suspicions of being watched are not likely to inject a significant inhibitory effect into the situation.[2]

The same thinking will also apply to the community children[3] who will be brought in as control subjects. There will be in their case, however, still more difficulty in justifying their presence in the Laboratory. It will be the responsibility of the researchers to exert the necessary ingenuity to maintain the attention and co-operativeness of these children. Resources are being accumulated for this purpose.

The recording of sound presented further problems. A suspended ceiling of acoustical tile[4] was built[5]; this amount of material makes the room sufficiently anechoic for the immediate purposes of the Laboratory. A sensitive microphone (Argonne, Model AR-57) was placed under a white cone in the ceiling in the center of the room, directly above a grill made of house screening, with two layers of cheesecloth to conceal the microphone; this square thus simply looks like a vent. With this arrangement, the microphone picks up even whispers from the corners of the room.

The principal feature of the recording room is a camera equipped with a wide angle lens and a triggering device for time-lapse photography. This technique, which has been in use for several years in time-and-motion studies, will be applied extensively to behavioral research. The camera will be fixed to an adjustable bracket which will in turn be mounted on a ramp, so that the camera can be moved to any of the observation portholes. The room is equipped with a platform, stools, and the usual recording accoutrements.

For the study of the neurophysiological correlates of emotional behavior, the laboratory has an EEG unit and a polygraph unit.

The EEG unit has two air-conditioned adjoining rooms. One room houses the instrument, a Grass Model IIIC, Console no. 402. The other room has a bed on which the patient lies while records are taken. The technician can observe the patient from the instrument through a one-way vision screen. The EEG unit has facilities for the storage of materials and records.

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[2] Due regard will be had for the rights of the children. Cf. Nancy Bayley, Implicit and explicit values in science as related to human growth and development. *Merrill-Palmer Quarterly*, 1956, 121-126.

[3] Through the local schools by agreement with parents.

[4] Travertone by the Armstrong Cork Company.

[5] By the Berger Acoustical Company, of Haverford, Pennsylvania.

The polygraph unit likewise has two rooms. One room contains the instrument, a Grass Model 5 Polygraph with four channels, for EKG, EMG, GSR, and other aspects of the physiological overflow of emotional response. The instrument is located in back of the room behind a simple screen; the subject will sit in front. A one-way vision glass (Mirropane, which looks like a framed mirror in the room) permits observation of the subject during recording. The room has a plenum ceiling of acoustical pads[6] with a three-foot panel of acoustical tile around the room at the top. This arrangement reduces sound reverberation and at the same time provides for the circulation of air from a system (in the next room) that both controls temperature and maintains relative humidity below the 50% level.[7] The motor of the air control unit is mounted on rubber cushions, and is covered with a sound-proofed box. Interference from this source is minimal. Lighting is provided with incandescent bulbs.

The aims of the designers of the laboratory was to foresee as many uses as possible with the available funds. The more specific instrumentation will be obtained according as required for experiments.

The research questions that can be raised with Laboratory, even as it stands, are numerous. In a general way, the research team, made up presently of two research psychologists[8] and an Advisory Research Committee[9], will seek first of all to determine dimensions in which the behavior of the maladjusted children admitted to the Governor Bacon Health Center differs from that of well children. The intensity of emotional response will be looked into; causal and consequent relationships will be sought. In this connection the history of each child will be carefully combed through for pertinent information (e.g., mothering patterns, early socialization, play habits, etc.). Attention will be paid to both gross behavioral reactions and to the less obvious processes, both mental and physiological, that may be of import. Characteristics of mentation will be explored; so will the factor of organic impairment.

Another area of research will be the dimensions of change inducible through various forms of therapy and management practices. Longitudinal studies in these areas will be conducted. Experiments will be carried out in the broad areas of preference, social interaction, language patterns. The psychotherapeutic process, whether with individuals or with groups, will be a suitable subject for investigation. Research will bear not only on overt behavior, but also on covert processes such as personality structure and dynamics with the aid of projective techniques. Data from all services having to do with the children will be collated for possible relationships (e.g., data on group integration, eating habits, sleep, frustration tolerance, work habits, etc.).

The significance of residential treatment will be appraised with reference to the remission of symptoms; the more amenable aspects of maladjusted behavior and the more effective aspects of the therapeutic process will be isolated with a view to formulating suggestions for improving treatment.

Research will extend into the future, and will attempt to evaluate the meaning of the turnover of the child population at the Health Center. It may eventually cover the study of the interaction between the child and the family, before, during, and after treatment.[10]

It is needless to go on with the enumeration of research topics. The possibilities are without number. The point of this paper and the designers of this Child Study Laboratory is that, unless research starts in a humble way, it stands a good chance of never getting off the ground.

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[6] By the Armstrong Cork Company.

[7] This mechanism was installed by Keil's, of Wilmington; the ceiling contract was handled by the Berger Acoustical Company.

[8] Ralph B. Ziegler with the Chief Psycbologist who is functioning as Research Director.

[9] This Committee is made up of members of the Governor Bacon Health Center Staff, Mr. Alexis Tarumianz, Business Administrator, Dr. James A. Flaherty, Consultant Psychiatrist, Dr. Curtis Marshall, Electroencephalographer of Johns Hopkins Hospital, Dr. William H. Tracy, Clinical Psychologist of the Eastern Pennsylvania Psychiatric Institute, Mrs. R. Marion Robb, and several members of the Du Pont Company, particularly Dr. R. Marion Robb and Mr. Freeman Dyke.

[10] A follow-up study is now being conducted by Dr. Hilda A. Davis, of the Health Center Staff.

## MARK B. HOLZMAN

1882 - 1957

Doctor Holzman, a general practitioner for 52 years, died June 9th. Born in Philadelphia, he graduated from the Medico-Chirurgical College of Philadelphia in 1904. He served in the Army Medical Corps during World War I. His one son, Mark, Jr., died in 1951. He is survived by his wife, Mrs. Aimee Holzman.

## SIGMUND B. PAWLEY

1893 - 1957

Doctor Pawley, who was born in Punxsutawney, Pennsylvania, died on August 17th. He graduated from Jefferson Medical College in 1917 and practiced continuously in Wilmington thereafter except for service in France in the Army during World War I. He is survived by his wife, Mrs. Joanna Pawley and one son, Lieutenant Sigmund B. Pawley, Jr., USN.

## G. BURTON PEARSON

1869 - 1957

Doctor Pearson died August 3rd after a lengthy illness. Born near Chestertown, Maryland, he practiced for fifty years in Middletown, Wilmington, Elkton and Newark. He was at one time an officer of the New Castle County Medical Society. He graduated in medicine in 1897 at the Albany Medical College and also studied at St. John's College, Harvard Medical School and Johns Hopkins University. A direct descendent of John Pearson, a Delawearan who served in the American Revolution, he is survived by one son, Judge G. Burton Pearson, Jr.

# + Editorial +

## NEW SERVICES FOR THE MENTALLY RETARDED

The General Assembly of the State of Delaware is heartily commended for passage of the bill authorizing the State Board of Trustees of the Delaware State Hospital, the Governor Bacon Health Center, and the Hospital for the Mentally Retarded at Stockley to establish and operate daytime centers throughout the State for the care of persons with I.Q. less than 35 who are neither educable nor trainable in the special education program of the public schools. This is the first attempt of the State to assume responsibility on a statewide basis for the seriously mentally retarded children for whom residential care is not indicated or desired.

This program will have two-fold meaning. It should benefit both the mentally retarded children and those who have had the twenty-four hour care and supervision of them. Among the benefits which should accrue from the program are the following:

1. For a number of hours during the day the parents or guardians will be relieved of the care and supervision of seriously retarded children, the burden of whose care has been their constant responsibility.

2. The mentally retarded children not trainable or educable in the public schools will be helped to become socially accepted in their families from whom they can receive love and nurture under conditions as nearly normal as possible.

3. Under a program which will bring them into contact with others in planned activities, the severely mentally retarded should be prevented from further mental deterioration such as frequently results from lack of stimulation and lack of opportunity to develop even very limited capacity.

4. The day care program should reduce the number of severely mentally retarded children admitted to institutions for residential care when the continued presence of such children would not be detrimental to their families, to the community in general, or to themselves.

This experiment is a pilot study. At the end of two years we should be able to determine whether moral, social, and emotional benefits have accrued to the parents or guardians of the severely mentally retarded and to the communities which the daytime centers have served.

We congratulate the members of the General Assembly for once again taking action for improving the mental health status of a group of the Delaware citizens. Through the years, the General Assembly has continued to make possible mental services in line with the best in modern medicine.

The interest of citizens, including parents of mentally retarded children, who thoughtfully and intelligently appraised the proposed plan and gave it their support, is also to be commended. Congratulations are especially due the organized group of parents, the Delaware Association for Retarded Children, whose support of the Bill was undoubtedly significant to the legislators as they took action.

The Medical Society of Delaware, through its official organ, wishes to acknowledge this important step which the General Assembly has taken in the enactment of enabling legislation and the appropriation of the sum of $165,000 for the 1957-59 biennium, thereby making available new services for the mentally retarded children of the state. May the State of Delaware continue to make available to even its most severely mentally retarded children the opportunity to develop to the extent of their capacities.

# THE LADY AT THE DESK

Doctor, who represents you, personally, most often to the public? Your receptionist, obviously. She's out there to meet people on your behalf, on your premises, and in your name, and that's what she does. To you, she represents assistance you couldn't do without. Her job is as different from her counterpart's across the street as you are from your colleague. And that's the point—to your patients, she's your alter ego, the extension of your personality in the front office, and they'll be impressed as favorably or unfavorably as you both deserve.

This is where the American Association of Medical Assistants comes in. The Association was formed several years ago on the premise that since your aide does represent you, she ought to do it well. It exists to educate her in office public relations, paramedical duties, and in getting across the idea that Dr. Doe's entire office is interested in the patient and wants to help him. It's a medical assistant's society, and the by-laws prevent its ever becoming a union.

The American Association of Medical Assistants is meeting in San Francisco on October 4th, 5th, and 6th. It might give your practice a lift if your aide could go. She might even get interested enough to help found a local chapter. Furthermore, the convention, transportation aside, is remarkably inexpensive, and even the fare is deductible as an expense of doing business.

Think the thing over. If you're interested, get in touch with the office of the Medical Society of Delaware for the details.

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## CONFERENCE ON NUTRITION

A conference on nutrition in relation to disease will be held September 30, 1957, at the College of Physicians of Philadelphia. Dr. Floyd S. Daft, Director, National Institute of Arthritis and Metabolic Diseases, Bethesda, Maryland, will speak on "The Relationship between Hormones and Nutrition." Dr. Edward H. Ahrens, Jr. of the Rockefeller Institute of Medical Research, New York, will speak on "Fat Metabolism in Relation to Cardiovascular Disease—Atherosclerosis." The Conference is sponsored by the Commission on Nutrition of the Medical Society of the State of Pennsylvania, the Philadelphia County Medical Society and the National Vitamin Foundation. Dr. Michael G. Wohl and Dr. Robert S. Goodhart will chair the evening session.

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## A.M.A. ANNOUNCES TWO CHANGES IN ADMINISTRATIVE SETUP

Chicago—The American Medical Association today announced two important changes in its administrative setup.

The Board of Trustees elevated Dr. George F. Lull of 942 Lake Shore Drive, Chicago, who has been secretary-general manager of the Association for 11 years, to the newly-created position of assistant to the president of the A.M.A. He will continue serving as secretary, which is an elective office.

At the same time, the Board announced the appointment of Dr. F. J. L. Blasingame of Wharton, Texas, to the position of general manager of the American Medical Association. He will take over his new duties on January 1, 1958.

Dr. Blasingame, who is 50, has been active in medical affairs, both at the state and national level, for many years. When the A.M.A. House of Delegates elected him as a member of the Board of Trustees in 1949 he was one of the youngest physicians ever chosen. Since then, he has held many important A.M.A. committee appointments.

He served as president of the Texas State Medical Association in 1955.

Teaching and medical education have always been close to his heart. After graduating from the University of Texas Medical School at Galveston in 1928, he spent three years as a teacher on the medical school staff. Ever since then he has maintained a teaching connection at the University of Texas.

Dr. Edwin S. Hamilton, Kankakee, Ill., chairman of the A.M.A. Board of Trustees, said that "the 164,000 members of the American Medical Association are fortunate in obtaining the services of Dr. Blasingame. He is young, highly experienced, and he is making the change at a great sacrifice to himself."

Dr. Hamilton, in announcing the appointment, said that "Dr. Blasingame is dedicated to the principles of good medical care for all of the American people. He possesses all the essentials of leadership, plus knowledge, imagination and sound thinking. His work on behalf of medicine through the years has shown that he has the courage and initiative to shoulder responsibility."

### DR. LULL TO ASSIST PRESIDENT

In his new job, Dr. Lull will relieve the president of the Association of many of the burdens of this office, which have become especially heavy in the last few years.

Dr. Hamilton said that "Dr. Lull will serve as spokesman, trouble-shooter, listening post, information center and as an ambassador of the medical profession in cities and towns throughout the country. His experience is invaluable, and it will be applied in solving medical problems at the state and local level, as well as nationally."

Dr. Lull, who is 70, joined the A.M.A. staff after serving 34 years in the Army. He entered the Army in 1912 as first lieutenant, emerging as major general of the Army Medical Corps. His last position before retirement was deputy surgeon general of the Army.

Dr. Lull received many honors in connection with his Army service during both World Wars, including the Distinguished Service Medal. In 1951, the Cuban government gave him its highest honor—the Order of Carlos Findlay—for his humanitarian work in the field of medicine.

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### DR. BLASINGAME TO MOVE TO CHICAGO

In discussing his new post, Dr. Blasingame said that he will leave his private practice which he has carried on in the same location for 20 years, and will move his family to Chicago, where the A.M.A. headquarters office is located, as soon as possible.

Dr. Blasingame has five children—three daughters, 22, 20 and 13, and two sons, 17 and 10.

His 20-year-old daughter, Betty, will soon enter the University of Texas Medical School; his 17-year-old son, John Chester, is a pre-medical student at the University of Texas in Austin.

Dr. Blasingame has long been active in civic affairs not only in his home town, but throughout Texas.

He is president of Blue Cross-Blue Shield Plans of Texas; he is chairman of the Board of Trustees of Wharton County Junior College, and he is also chairman of the medical advisory board of Sears, Roebuck Foundation, which encourages young doctors to create new medical facilities where they are needed.

Dr. Blasingame's many activities took him away from home 128 days last year, and he traveled more than 60,000 miles, mostly by air.

Physicans who know him well say that he possesses a preciseness of manner and a diplomatic polish that compliment each other in both his role as a practicing physician and as a spokesman for his colleagues in state, national and international groups. He has represented the A.M.A. at several world conferences of the World Medical Association abroad.

# BOOK REVIEWS

Clinical Proctology. By J. Peerman Nesselrod, M. D., M. S., M. Sc. (Med.) F. A. C. S., F. A. P. S., Assistant Professor of Surgery, Northwestern University Medical School. 2nd Ed., 1957. Cloth. Pp. 292, with 72 illustrations. W. B. Saunders Company, Philadelphia. $7.00.

General practitioners, to whom the author chiefly addresses himself, as well as internists and house officers, will find this book a highly practical and sound guide to the diagnosis and treatment of diseases of the anorectal region. The text is concise and explicit. The illustrations, particularly the photographs in color, are excellent. Nonsurgical treatment is fully presented. Infection of the anorectal glands, a subject that has long interested the author and one whose importance is not generally presented, is discussed completely and in an interesting manner. The sections on pruritus ani, diagnostic procedures, clinical proctoscopy, and neoplastic diseases will be profitable reading for anyone in the field of general medicine.

Surgeons and proctologists will find this book a valuable guide to surgery of the anorectal region. Here again, the portion that deals with infection of the anorectal glands and the resulting stricture is outstanding. In fact, surgery of the anorectal area is so well presented that one finds oneself wishing for a companion volume by the same author dealing with the remainder of the large bowel.

C. S.

The Physician-Writer's Book — Tricks of the Trade of Medical Writing. By Richard M. Hewitt, A. M., M. D., Senior Consultant, Section on Publications, The Mayo Clinic; Associate Professor of Medical Literature, The Mayo Foundation Graduate School, University of Minnesota. 415 pages, 37 illustrations. 1957. W. B. Saunders Company, Philadelphia. $9.00.

This book is written by an authority on the subject by virtue of his present position and his past tremendous experience. Any book by Dr. Hewitt will be a gold mine on writing technics and should be in the library of any physician who writes more than an occassional paper. The author tends to be rather rigid in regard to some points. For example, he gives an inflexible formula for preparing references. From the practical standpoint, the average physician who desires to write a paper for publication will do well to conform to the style used by the journal to which he plans to submit the paper. The occassional writer might be better off to consult one of the smaller volumes on the subject.

A. H. C., Jr.

Dorland's Illustrated Medical Dictionary. Editorial Board: Leslie Brainerd Arey, Ph.D., Sc.D., LL.D., William Burrows, Ph.D., J. P. Greenhill, M. D. and Richard M. Hewitt, A. M., M. D. Including: Modern Drugs and Dosage by Austin Smith, C. M., M. D. and Fundamentals of Medical Etymology by Lloyd W. Daly, A. M., Ph.D. Physiological Consultants: Paul J. Alexander, Ph.D. and Harry C. Messenger, M. D. Ed. 23rd, 1957. Over 700 illustrations; 50 plates. W. B. Saunders Company, Philadelphia. $12.50.

This volume has long been a favorite of medical editors and is undoubtedly authoritative in its field. The office of every practicing physician should certainly have a good medical dictionary. Dorland's can be recommended without reservation.

A. H. C., Jr.

Pediatric Cardiology. By Alexander S. Nadas, M. D., F. A. A. P., Assistant Clinical Professor of Pediatrics, Harvard Medical School; Cardiologist, The Children's Hospital; Physician, Sharon Cardiovascular Unit, Children's Medical Center, Boston. 587 pages, 343 illustrations. 1957. W. B. Saunders Company, Philadelphia. $12.00.

Dr. Nadas is well qualified to write this authoritative book. He states that he did not intend to write a reference book; that he wrote almost exclusively about his experiences during the past ten years. He certainly exceeded the latter goal inasmuch as the book contains large sections, the material of which is certainly not limited to Boston. Several illustrations are inverted, probably the result of trans-Atlantic proofreading. All in all, however, the book is excellent and worthwhile. It should be in the library of every cardiologist and pediatrician. It should be in hospital libraries for general reference. Dr. Nadas has a wealth of material and has presented it in an easily digestible form.

A. H. C., Jr.

# INFLUENZA

Dr. Leroy E. Burney*

*The following is a condensed version of an article by Dr. Leroy Burney to be published in the Journal of the A.M.A. Because of the importance of the educational campaign regarding the Asian influenza epidemic, and in order to reach as many physicians as possible, this material is being published here.*

During recent weeks the eyes of the medical profession have been on the influenza epidemic which swept through the Far East. Thus far only sporadic outbreaks have occurred in this country, affecting several thousand people. Experts in the field say there is little question that we will have an epidemic in this country sometime during the fall and winter months.

Since 1948 the Influenza Study Program sponsored by the World Health Organization has maintained a system of reporting specific diagnosis of influenza in the United States, Canada, South America and Europe.

The current epidemic was first reported in Hong Kong and Singapore in late April, 1957. Epidemics followed rapidly in Taiwan, the Philippines, the Malay States, Japan, India and other areas. Virus sent to this country for antigenic analysis were found to be type A, but antigenically different from any previously known A strains in the hemoagglutination inhibition test. Animal anti-sera prepared against type A strains did not inhibit or neutralize the new variant and no protective antibody could be demonstrated in sera from human beings repeatedly vaccinated with previously prevalent type A virus.

Information to date suggests that little protection against the new virus is gained by previous vaccination with existing influenza vaccine.

Beginning June 2 a series of influenza outbreaks were reported among ships which had been berthed in Narragansett Bay, Newport, R. I. Spread of the epidemic was erratic. Subsequent infections have been reported in San Diego, Monterey, Davis and San Francisco, Calif.; Cleveland, Ohio; Lexington, Ky.; Valley Forge, Pa.; Salt Lake City, and Grinnell, Iowa.

## Clinical and Public Health Aspects

The experience in Asia and in the United States provides no basis for predicting an increase in severity of infection in the coming fall and winter or during the next year or two. The present concern arises largely from the possibility that a more virulent variety of the Asian type may emerge. The severity of the 1918 epidemic is believed to have been due to some mutation which exposed the population to a virus or viruses radically different antigenically from those strains to which they had been previously exposed.

Influenza is usually characterized by abrupt onset, prostration, fever up to 104, headache, myalgia, cough and sore throat. X-ray examinations of the chest usually show no abnormal findings. Leukopenia is common in uncomplicated cases. The febrile period usually lasts 3 to 5 days, following which the patient may complain of extreme weakness for several more days.

In laboratory diagnosis of individual cases, the virus may be isolated from secretions of the nose and throat early in the course of the illness. The procedure consists of inoculating chicken eggs which have been incubated for about ten days, and recovering the virus in the fluids of the embryonic sac.

Paired specimens of blood, one taken in the acute phase and the other 10 days to two weeks later, may be used for serological tests. A four-fold or greater rise in antibody titer is regarded as an indication of influenza infection. Since neither of these laboratory procedures can be completed while the patient is still acutely ill, they are of little value to the physician in prescribing treatment. Such tests are necessary, however, to confirm the presence or absence of influenza in a community.

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* Surgeon General, U. S. Public Health Service, Dept. of HEW.

## IMMUNOLOGICAL ASPECTS

Studies in the military reveal that a properly conditioned vaccine is 70 per cent effective under epidemic conditions and that reactions to the vaccine are quite rare. Individuals known to be sensitive to egg are *not* given the vaccine since virus is grown in embryonated eggs.

The manufacturers of vaccine are able to produce a satisfactory monovalent vaccine (containing the Asian strain) in sufficient quantity for civilian use this winter. They are currently working on a large-scale production basis.

## PRESENT CONSIDERATIONS

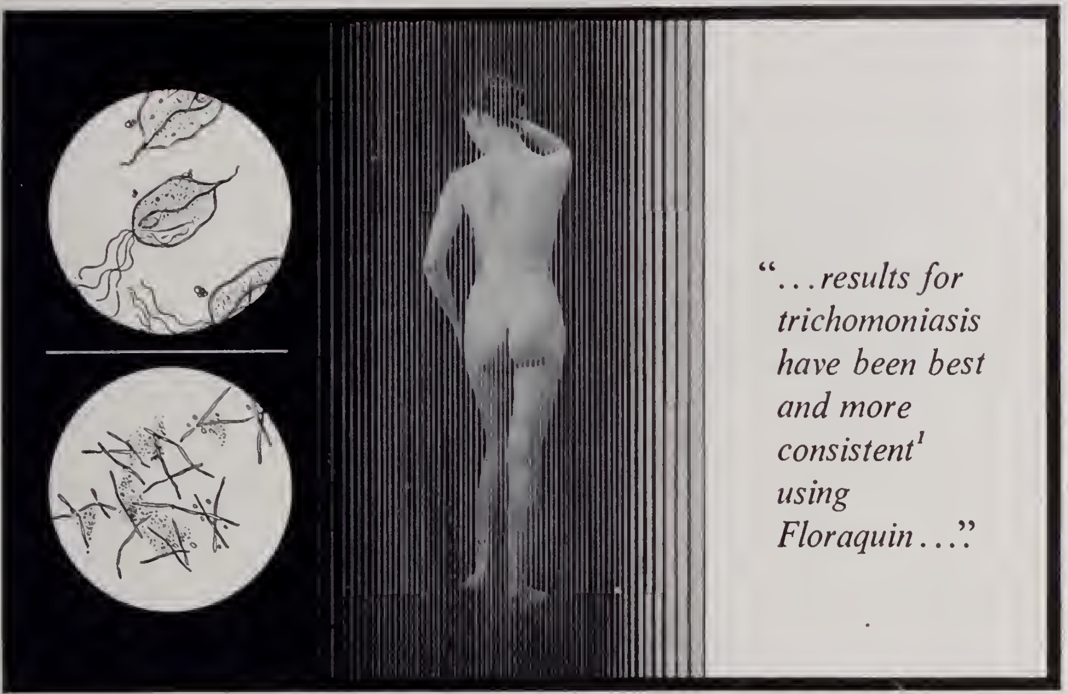
Isolation of causative virus has been made prior to the appearance of influenza in the United States; thus for the first time in history we are in the fortunate position of being ahead of an impending epidemic of influenza. It seems probable that influenza will continue to spread for the remainder of the summer months but will not be highly epidemic in this country until fall or winter when outbreaks may be anticipated. While the disease will probably be mild there is always the outside possibility of a repeat of the 1918 epidemic. There is a further possibility that the virulence of the infection as reflected in case-mortality rates will increase. Even though these are still only possibilities, any preparations which need to be done to meet these eventualities must be accomplished now. After a pandemic starts it will be too late.

At the invitation of the WHO, a plan for investigation of influenza outbreaks in foreign countries has been developed by the influenza commission of the Armed Forces Epidemiological Board. Teams making the studies will be particularly interested in determining (a) the properties of the virus, (b) complete clinical descriptions, (c) whether a bacterial component is associated with the illness, and (d) epidemiologic aspects.

The American Medical Association has already announced a program designed to offset the severe strain placed on medical personnel when so many people suddenly become ill.

Finally, in recent years the nature of influenza in this country has not warranted the use of influenza vaccine except on a group basis to minimize absenteeism or in so called priority groups. However, the present influenza epidemic, with its rapidity of spread and high attack rate is sufficiently unusual to press for immunization against the new strain of influenza virus. As a properly constituted vaccine is the only preventive for this disease, the Public Health Service with the Association of State and Territorial Health Officers and the American Medical Association plans to promote the use of the vaccine as soon as it becomes available. To accomplish this we plan to embark upon an educational and promotional campaign to encourage all persons who want it to seek influenza vaccine on a voluntary basis. Any such campaign must be conducted in an orderly fashion to avoid confusion and hysteria in the public and will call for the combined efforts of all of us.

**EFFECTIVE, DEPENDABLE THERAPY FOR VAGINITIS**


"...*results for trichomoniasis have been best and more consistent*[1] *using Floraquin*..."

# Floraquin® eliminates trichomonal and mycotic infection; restores normal vaginal acidity

Leukorrhea is by far the most frequent symptom of vaginitis; trichomonads and monilia are the most common causes. Many authors have reported[2] trichomonal protozoa in the vagina of 25 per cent of obstetric and gynecologic patients. Increased use of broad spectrum antibiotics has resulted in a sharp rise in the incidence of monilial infections.

Floraquin effectively eradicates both trichomonal and monilial vaginal infections through the action of its Diodoquin® content. Floraquin also furnishes boric acid and sugar to restore the normal vaginal acidity which inhibits pathogens and favors the growth of protective Döderlein bacilli.

Pitt[1] recommends vaginal insufflation of Floraquin powder daily for three to five days, followed by acid douches and the daily insertion of Floraquin vaginal tablets throughout one or two menstrual cycles. G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

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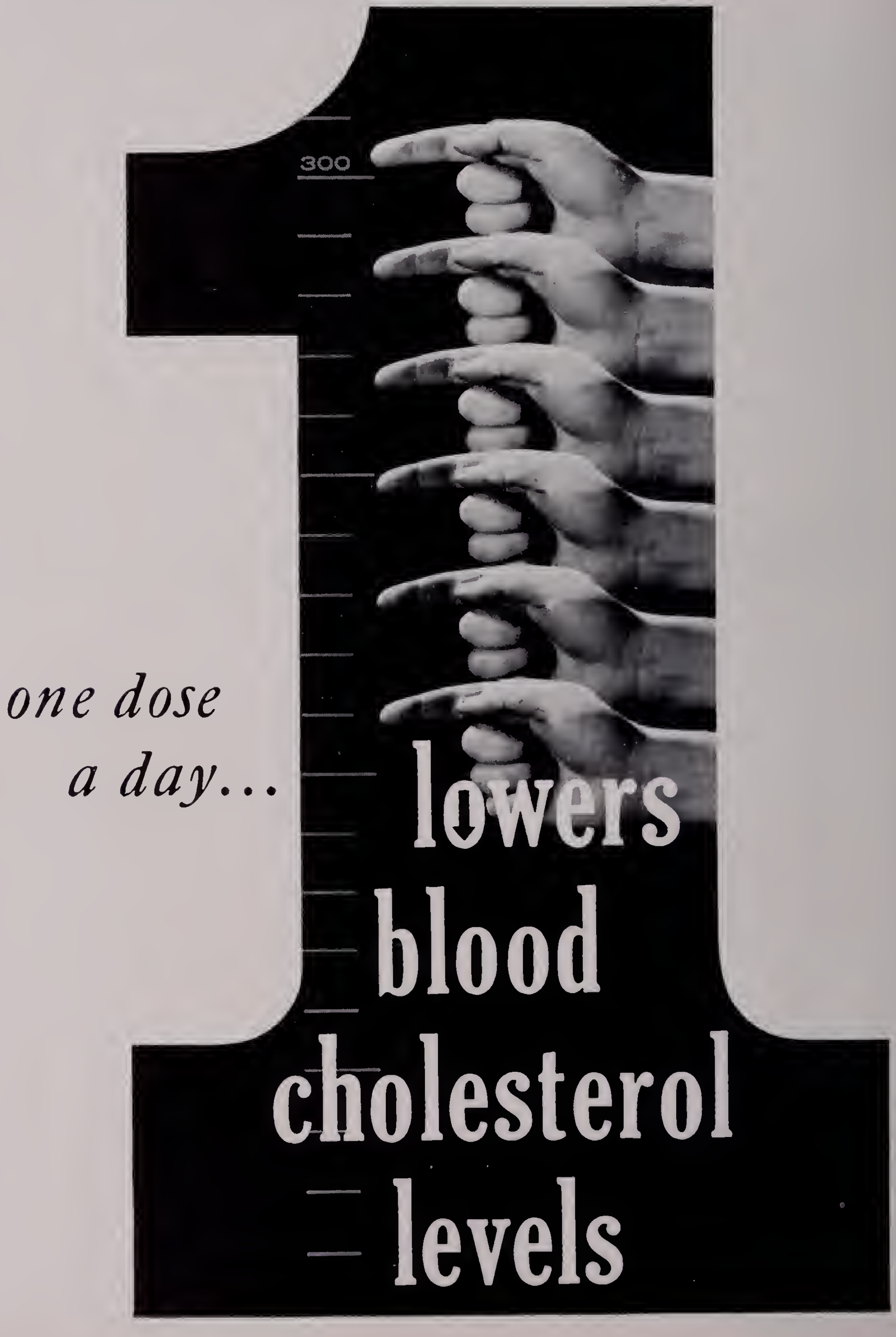
[1] Pitt, M. B.: Leukorrhea. Causes and Management, J. M. A. Alabama *25:*182 (Feb.) 1956.

[2] Parker, R. T.; Jones, C. P., and Thomas, W. L.: Pruritus Vulvae, North Carolina M. J. *16:*570 (Dec.) 1955.

**SEARLE**


300
one dose
a day...
lowers
blood
cholesterol
levels

announcing...
a new practical
and effective method
for lowering blood
cholesterol levels...
**Arcofac**

**Just one dose a day effectively lowers elevated blood cholesterol**

**. . . while allowing the patient to eat a balanced . . . nutritious . . . and palatable diet**

Each tablespoonful of emulsion contains:

| | |
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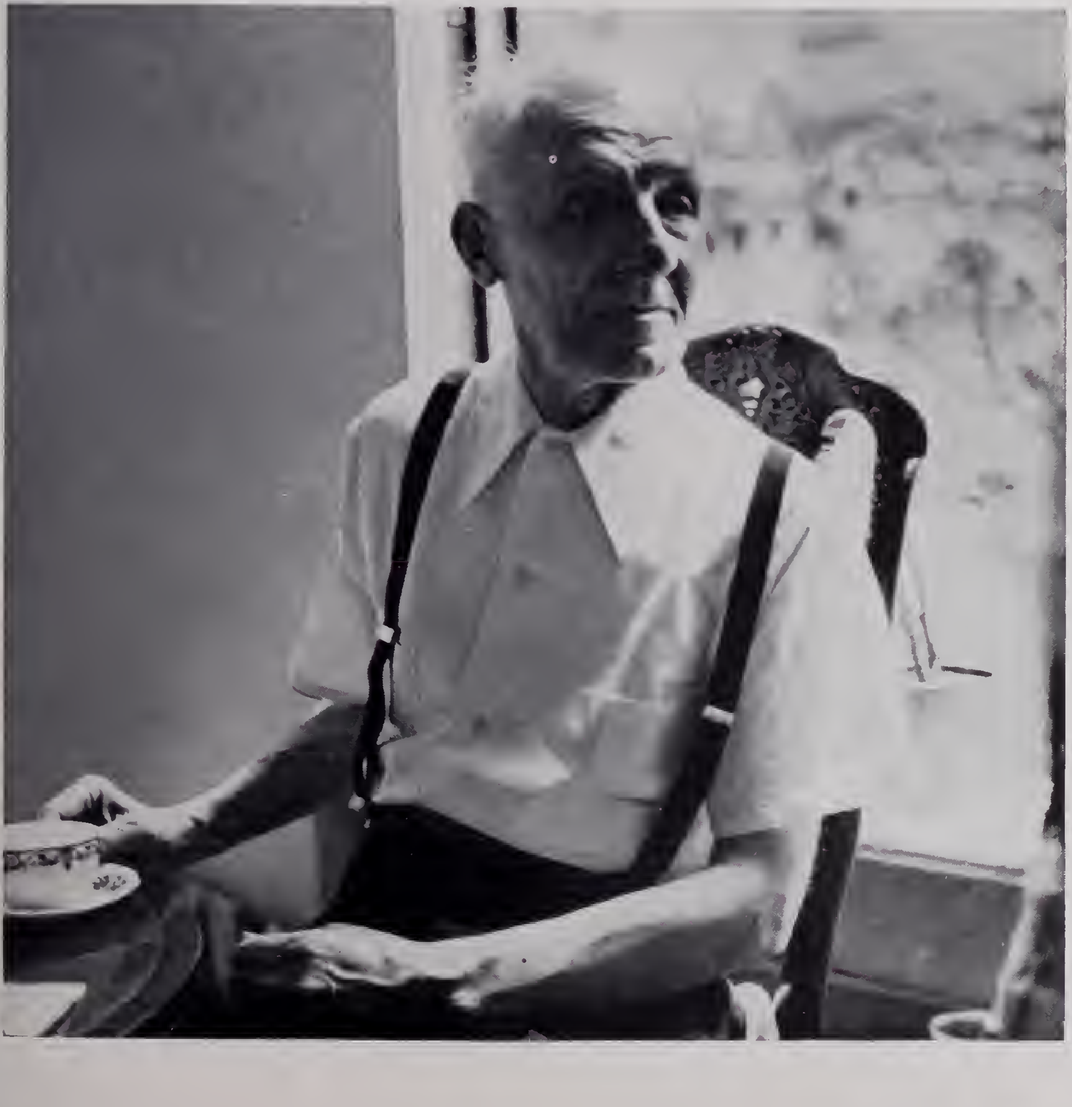

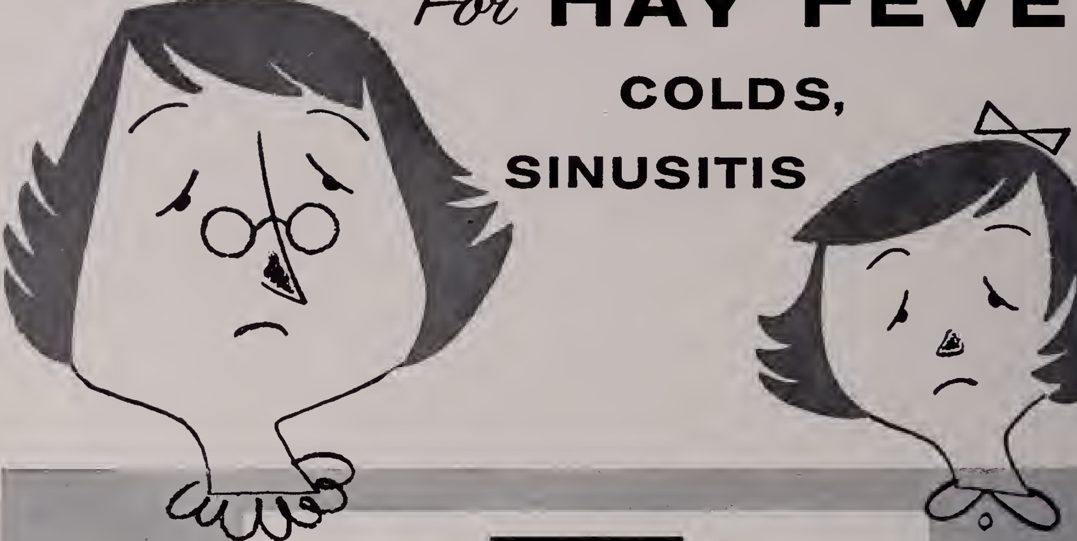

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**References:** 1. Communication to Abbott Laboratories, 1956. 2. Moyer, J. H. et al: Deserpidine for the Treatment of Hypertension, Southern Medical J., 50:499, April, 1957.

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References: (1) Holt, J. O. S., Jr.: Dallas M. J. *42*:497, 1956. (2) Gelvin, E. P.; McGavack, T. H., and Kenigsberg, S.: Am. J. Digest. Dis. *1*:155, 1956. (3) Natenshon, A. L.: Am. Pract. & Digest Treat. *7*:1456, 1956.

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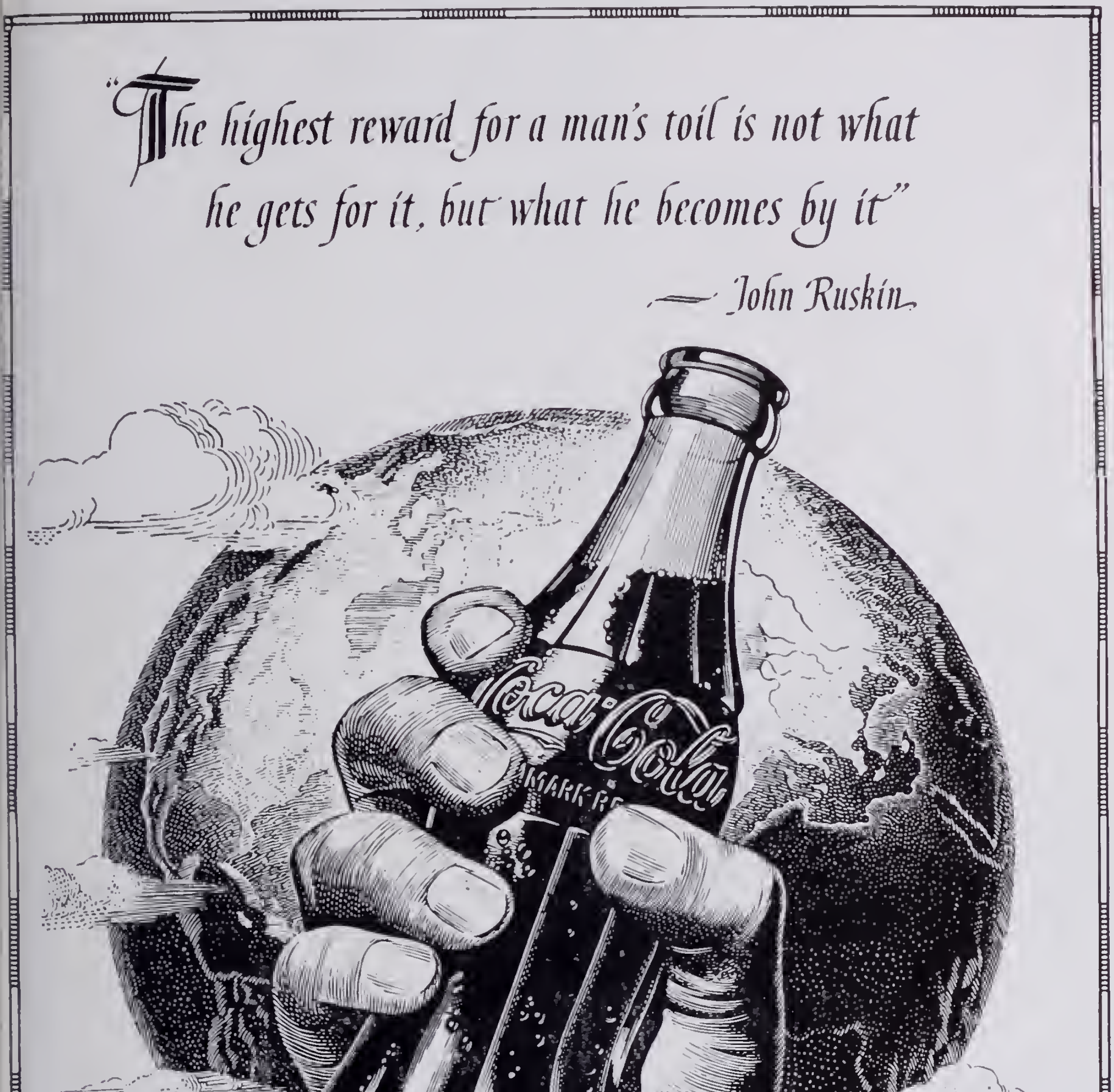
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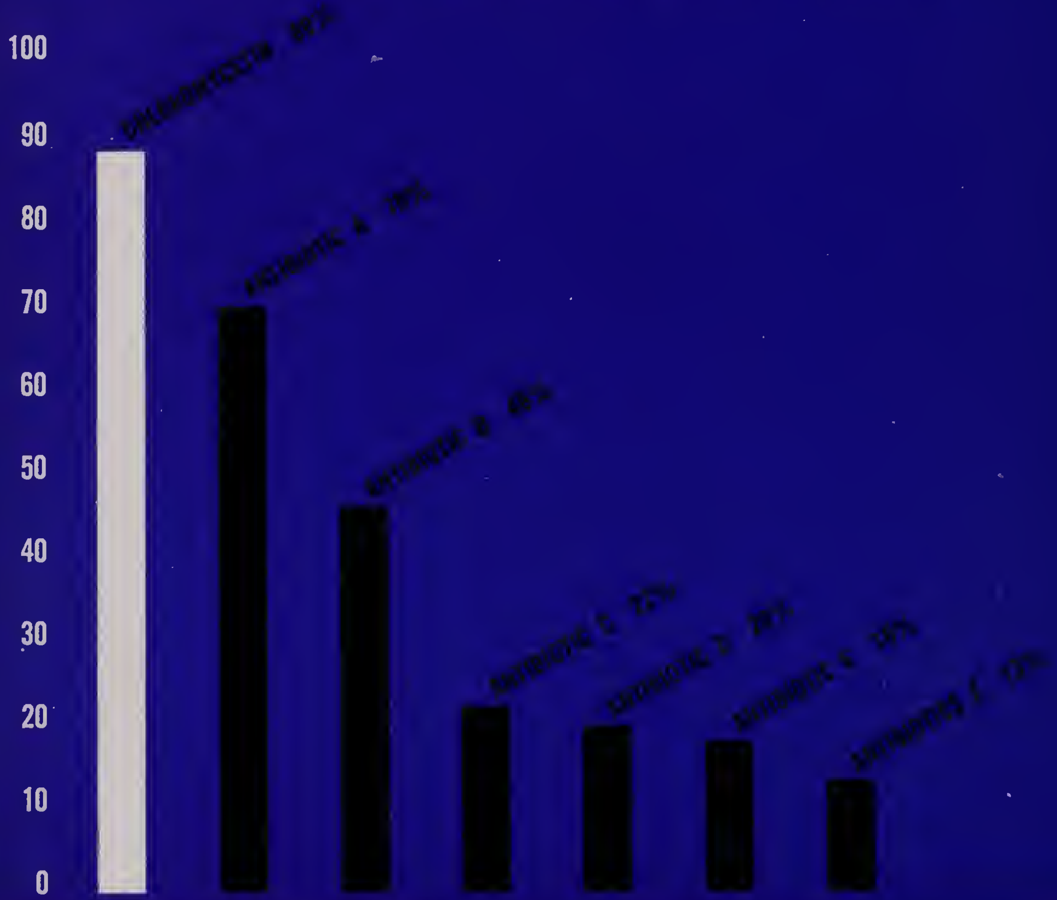

*This graph is adapted from Kempe, C. H.: *California Med.* 84:242, 1956. The single bar designated as "Antibiotics F" represents three widely used, chemically related agents grouped together by the investigator. Strains isolated January-June, 1954.

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# A REPORT ON A PROMISING CONCEPT IN ANTIMICROBIAL THERAPY: CONCURRENT ADMINISTRATION OF CHLOROMYCETIN AND GAMMA GLOBULIN

In treatment for infection, the physician is confronted with complex interactions between pathogen, antimicrobial agent and host. The pathogen represents the unselected factor, the therapeutic agent the component over which the physician exercises maximum control. But even with optimal antibiotic therapy, the eventual elimination of the infective agent and the resolution of pathologic changes depend upon efficient host response.[1,2]

Passive transfer of antibodies through gamma globulin provides a broad antibacterial spectrum because of origin in adults exposed to a variety of microorganisms. Employed as a protective element against some of the more common contagious diseases, gamma globulin permits more competent participation by the host in the fight against established infection.

Rationale for immuno-antibiotic therapy lies in simultaneous direct attack on the pathogen and re-enforced host resistance, which implies usefulness in treatment for acute fulminating, highly refractory, or prolonged infections.

## EXPERIMENTAL STUDIES ENCOURAGING

In carefully controlled studies in mice, Fisher and his colleagues in Parke-Davis Research Laboratories, using pooled human gamma globulin and Chloromycetin (chloramphenicol, Parke-Davis) concurrently, demonstrated a high degree of therapeutic effectiveness in infected animals.[3] Five types of infection induced with species of Staphylococcus aureus, Streptococcus pyogenes, Proteus vulgaris and Pseudomonas aeruginosa responded to joint therapy with gamma globulin and Chloromycetin, each agent having shown at deliberately low doses in previous work little or no activity in these mouse infections when used separately. Fisher's experiences with hemolytic streptococci have been confirmed.[4]

Tests now in progress with pneumococci, salmonellae and additional strains of pseudomonas and proteus indicate that marked increases in survival rates may be anticipated in any infection where chloramphenicol has previously demonstrated therapeutic activity.[3] These observations suggest that immuno-antibiotic therapy can effect cures in a variety of refractory microbial diseases.

## PROMISING IN EARLY CLINICAL TRIAL

Observations analogous to those of Fisher have been reported from the clinic.[5-7] More recently, the clinical use of gamma globulin in conjunction with antibiotics was undertaken by Waisbren[8] on the basis of Fisher's experimental work. His series of 46 patients with systemic and localized infections due to various strains of staphylococcus, pseudomonas, salmonella, proteus and to the pneumococcus had failed to respond to maximum effort with conventional therapeutic measures. Marked clinical improvement in six of these acutely ill patients shows clearly "...that in certain instances the addition of gamma globulin to antibiotic therapy may give a clinical result that could not have been obtained with the antibiotics used alone. In each of these cases, a long and extensive control period in which antibiotics were being vigorously administered had failed to produce a response but when gamma globulin was given with approximately the same dosages of antibiotic, rather marked improvements occurred."[8]

While the precise mechanism underlying the salutary effect of gamma globulin remains to be clarified, the existence of quantitative hypogammaglobulinemia was ruled out in patients in this series.[8]

## A RATIONALE FOR IMMUNO-ANTIBIOTIC THERAPY

Although the relationship of susceptibility to infection and status of the host is well recognized, host resistance is an aspect of infectious disease still not understood in an era of extensive and of massive antibiotic therapy. Most antibiotics, in concentrations tolerated by living tissues, have bacteriostatic rather than bactericidal effect. In the clinic, bacteriostatic doses are most frequently given and host defense mechanisms are responsible for the eventually satisfactory clinical result.[4]

The problem of therapeutic failures despite vigorous courses of antibiotic therapy may be due to some disturbance in the immune process.[9] In addition, disproportionately high mortality rates in the extremes of life lend support to the impression of inadequate defense mechanisms, since these are underdeveloped and immature in the very young and may be impaired or depressed in the aged.[4]

Any discussion of immuno-antibiotic treatment must at present remain largely conjectural. From preliminary evidence, however, this approach to therapy appears worthy of consideration, especially in patients in whom adequate antibiotic therapy for active infectious processes has been disappointing. While the concept of enlisting the aid of the host in combating pathogenic microbes, thereby affording the physician control of two of the three principal interacting factors, is not new, enhancement of host resistance through use of gamma globulin in treatment for microbial disease is indeed a promising one.

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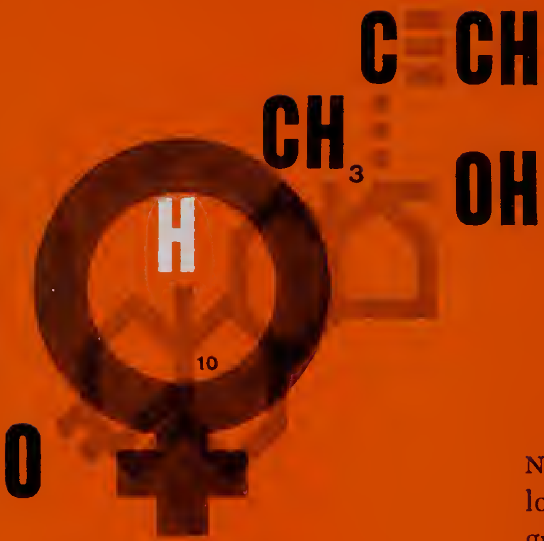

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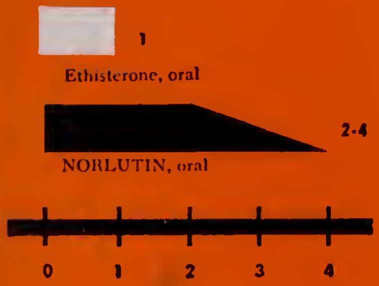
**INDICATIONS FOR NORLUTIN:** amenorrhea, menstrual irregularity, functional uterine bleeding, infertility, habitual abortion, threatened abortion, premenstrual tension, dysmenorrhea.

**RELATIVE POTENCIES OF ETHISTERONE AND NORLUTIN IN HUMANS**[2, 3]



**REFERENCES:** (1) Hertz, R.; Tullner, W., & Raffelt, E.: *Endocrinology* 54:228, 1954. (2) Greenblatt, R. B.: *J. Clin. Endocrinol.* 16:869, 1956. (3) Hertz, R.; Waite, J. H., & Thomas, L. B.: *Proc. Soc. Exper. Biol. & Med.* 91:418, 1956. (4) Tyler, E. T.: *J. Clin. Endocrinol.* 15:881, 1955. (5) Greenblatt, R. B., & Clark, S. L.: M. Clin. North America, Philadelphia, W. B. Saunders Co. (Mar.) 1957, p. 587.

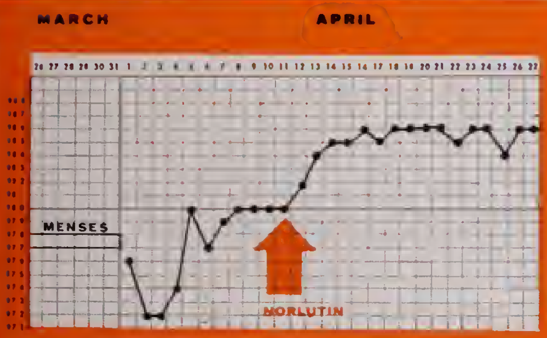
**PACKAGING:** 5 mg. scored tablets (C. T. No. 882), bottles of 30.

# UNSURPASSED EFFICACY

## in disorders of menstruation and pregnancy

**NORLUTIN: Progestational Effect on Endometrium**"...10 mg. [NORLUTIN] given twice daily represents a reproducibly effective dose in women for the production of marked progestational changes in the endometrium."[3]

Presecretory to secretory endometrium after 5 days treatment.



**NORLUTIN: Thermogenic Effect** "This preparation was found to have a marked thermogenic, and other physiologic effects in comparatively small dosage."[4]

**NORLUTIN: Abolition of Arborization in Cervical Mucus** NORLUTIN "...inhibits the fern leaf pattern in cervical mucus."[5]

1. Fern leaf pattern. 2. Arborization completely abolished by NORLUTIN.

**NORLUTIN: Induction of Withdrawal Bleeding** "As little as 50 mg. of [NORLUTIN] administered in divided doses over a five-day period was sufficient to induce withdrawal bleeding."[2]

MEDICAMENTA VERA

**PARKE, DAVIS & COMPANY · DETROIT 32, MICHIGAN**

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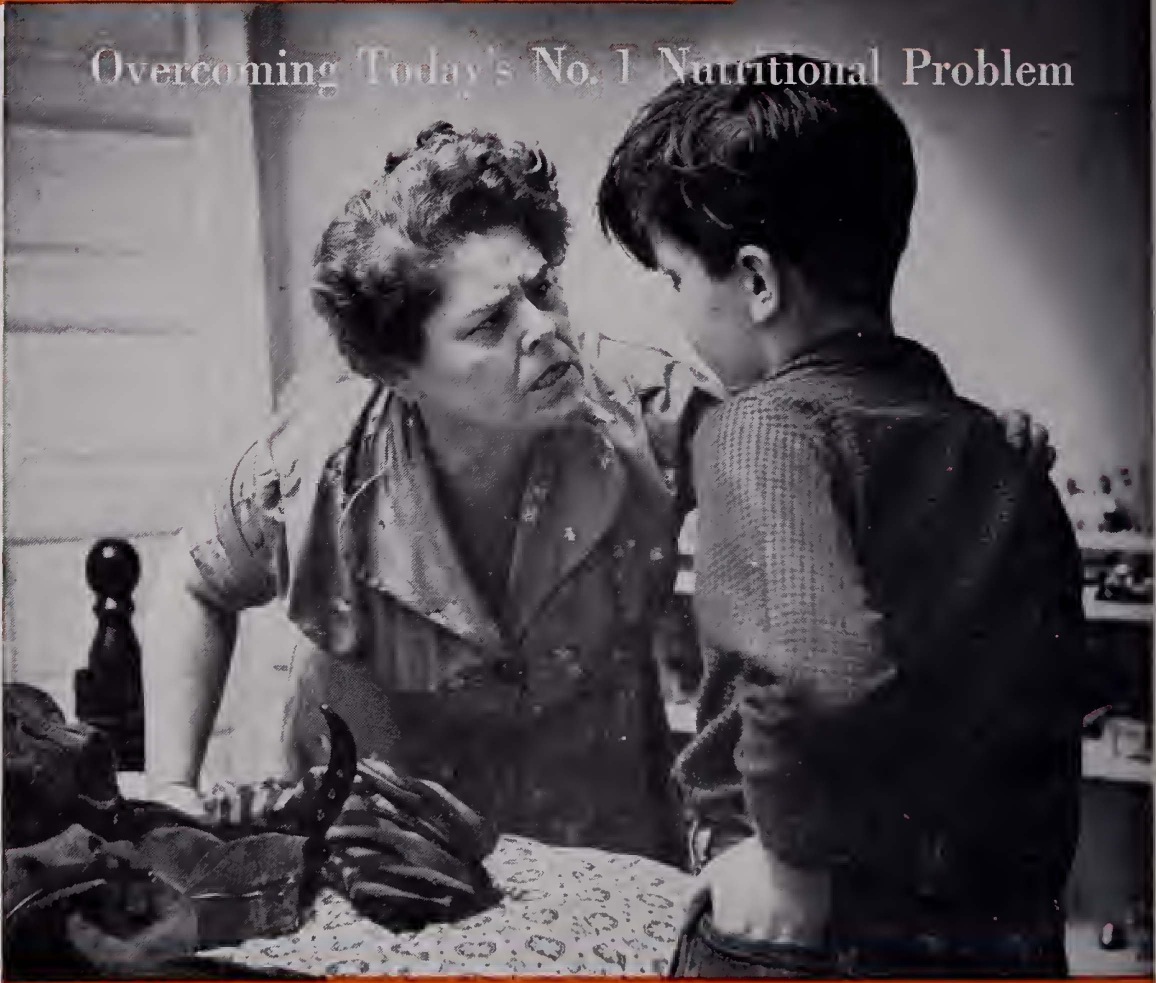
**KNOX** PROTEIN PREVIEWS

Overcoming Today's No. 1 Nutritional Problem



Knox "Choice of Foods" Diet Can Help Your
HYPERTENSIVE Patients to Reduce and Stay Reduced

**1.** Color coded diets of 1200, 1600 and 1800 calories are based on nutritionally tested Food Exchanges.[1]

**2.** The easy-to-use Food Exchanges (called Choices in booklet) simplify diet management by eliminating calorie counting.

**3.** Diets promote accurate adjustment of caloric levels to the special needs of the patient yet allow each individual considerable latitude in the choice of foods.

**4.** More than six dozen appetizing, low-calorie recipes are described in the last fourteen pages of the diet booklet.

---

[1] The Food Exchange Lists referred to are based on material in "Meal Planning with Exchange Lists" prepared by Committees of the American Diabetes Association, Inc., and The American Dietetic Association in cooperation with the Chronic Disease Program, Public Health Service, Department of Health, Education and Welfare.

Chas. B. Knox Gelatine Co., Inc.
Professional Service Dept. SJ-26
Johnstown, N. Y.

Please send me ....... dozen copies of the new, illustrated Knox Reducing booklet based on Food Exchanges.

Your Name and Address.

## FOR THE ENTIRE RANGE OF RHEUMATIC-ARTHRITIC DISORDERS—from the mildest to the most severe

many patients with MILD involvement can be effectively controlled with

**'MEPROLONE'**

many patients with MODERATELY SEVERE involvement can be effectively controlled with

**'MEPROLONE'**

NEW

and NOW for patients with SEVERE involvement

MULTIPLE COMPRESSED TABLETS

# 'MEPROLONE'

**The only meprobamate-prednisolone therapy**

the one antirheumatic, antiarthritic that simultaneously relieves: (1) muscle spasm (2) joint inflammation (3) anxiety and tension (4) discomfort and disability.

**SUPPLIED:** Multiple Compressed Tablets in three formulas: 'MEPROLONE'-5—5.0 mg. prednisolone, 400 mg. meprobamate and 200 mg. dried aluminum hydroxide gel. 'MEPROLONE'-2—2.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel. 'MEPROLONE'-1 supplies 1.0 mg. prednisolone in the same formula as 'MEPROLONE'-2.

MSD MERCK SHARP & DOHME
DIVISION OF MERCK & CO., INC.
PHILADELPHIA 1, PA.

'MEPROLONE' is a trademark of Merck & Co., Inc.

# PHENAPHEN® PLUS

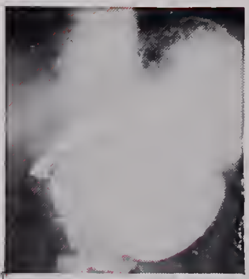
Phenaphen Plus is the physician-requested combination of Phenaphen, plus an antihistaminic and a nasal decongestant.

Available on prescription only. Robins

| each coated tablet contains: **Phenaphen** | |
|---|---|
| Phenacetin (3 gr.) | 194.0 mg. |
| Acetylsalicylic Acid (2½ gr.) | 162.0 mg. |
| Phenobarbital (¼ gr.) | 16.2 mg. |
| Hyoscyamine Sulfate | 0.031 mg. |
| plus | |
| Prophenpyridamine Maleate | 12.5 mg. |
| Phenylephrine Hydrochloride | 10.0 mg. |

when anxiety and tension "erupts" in the G. I. tract...

# IN GASTRIC ULCER



# PATHIBAMATE*

Meprobamate with PATHILON® Lederle

*Combines* Meprobamate (*400 mg.*) the most widely prescribed tranquilizer . . . helps control the "emotional overlay" of gastric ulcer — without fear of barbiturate loginess, hangover or habituation . . . *with* PATHILON (*25 mg.*) the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

*Dosage:* 1 tablet t.i.d. at mealtime. 2 tablets at bedtime. *Supplied:* Bottles of 100, 1,000.

*Trademark ® Registered Trademark for Tridihexethyl Iodide Lederle

Lederle LEDERLE LABORATORIES DIVISION. AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK

# SAFETY FIRST

SAFETY FIRST IN ANTI-BIOTIC THERAPY
Gersten

**AFTER FIVE YEARS OF EXTENSIVE USE—NOT A SINGLE REPORT OF A SERIOUS REACTION TO**

**Filmtab Erythrocin**
**STEARATE** (Erythromycin Stearate, Abbo

This unique safety record stands unparalleled in antibiotic therapy today. In addition, ERYTHROCIN is virtually free of side effects.

Yet, with all this freedom from toxicity, ERYTHROCIN is effective in nearly 100% of common respiratory infections. *Filmtab* ERYTHROCIN Stearate (100 and 250 mg.), bottles of 25 and 100.
Adult dose is 250 mg. q.i.d.

Abbott

# NEW HYDELTRA®-T.B.A.

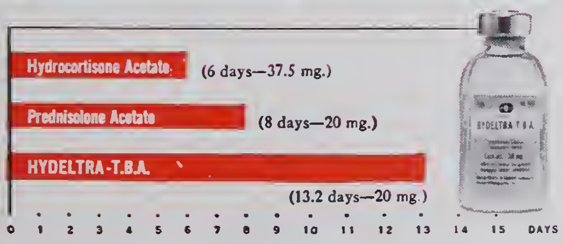
(Prednisolone *tertiary*-butylacetate, Merck)

## for relief that lasts—longer

in *TRIGGER POINT TENDERNESS*—permits painless movement

- Bursitis
- Rheumatoid arthritis
- Osteoarthritis
- Acute gouty arthritis
- Tendinitis
- Trigger finger
- Peritendinitis
- Trigger points
- Tennis elbow
- Lumbosacral strain
- Capsulitis
- Frozen shoulder
- Coccydynia
- Rheumatoid nodules
- Fibrositis
- Tensor fascia lata syndrome
- Collateral ligament strains
- Sprains
- Radiculitis
- Osteochondritis
- Ganglia

**Duration of relief exceeds that provided by any other steroid ester**



**Dosage:** the usual intra-articular, intra-bursal or soft tissue dose ranges from 20 to 30 mg. depending on location and extent of pathology.

**Supplied:** Suspension 'HYDELTRA'-T.B.A.—20 mg./cc. of prednisolone *tertiary*-butylacetate, in 5-cc. vials.

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MERCK SHARP & DOHME
DIVISION OF MERCK & CO., INC.
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For the
greatest
potential value
and the
least probable risk

# SIGNEMYCIN*

OLEANDOMYCIN TETRACYCLINE-PHOSPHATE BUFFERED

multi-spectrum potentiated therap .
buffered for higher, faster antibiotic
...adds new certainty in antibiotic
apy ... *particularly for that 90%*
*patient population treated at home o*
*when susceptibility testing i*
*practical—*

*Supplied:*

Signemycin V Capsules containing 250 m
andomycin 83 mg., tetracycline 167 mg.)
phate buffered. Bottles of 16 and 100.

Signemycin† Capsules – 250 mg. (olean
83 mg., tetracycline 167 mg.), bottles of
100; 100 mg. (oleandomycin 33 mg., tetr
67 mg.), bottles of 25 and 100.

Signemycin for Oral Suspension – 1.5
mg. per 5 cc. teaspoonful (oleandomycin
tetracycline 83 mg.), mint flavored, bottles

Signemycin Intravenous – 500 mg. vials
domycin 166 mg., tetracycline 334 mg.),
mg. vials (oleandomycin 83 mg., tetracyc
mg.); buffered with ascorbic acid.

Pfizer

Pfizer Laboratories, Brooklyn
*Division, Chas. Pfizer & Co., In*

World leader in antibiotic development and pr

---

*Trademark †Trademark, oleandomycin tetracycline

**Current Concepts in**

# Infant Carbohydrate Metabolism

The adequately balanced diet must contain carbohydrate as an essential nutrient. Though some carbohydrate becomes available to the body from the transformation of protein and fat, these sources contribute minor amounts of the total carbohydrate requirement.

Body energy comes from the oxidation of carbohydrate and fat but carbohydrates are oxidized preferentially. The brain derives its supply of energy exclusively from the oxidation of carbohydrate. Besides, the infant's requirement for energy is unusually high and can be most readily satisfied by carbohydrate.

All tissues of the body constantly require and use carbohydrate under all conditions. Even a temporary fall of the blood sugar below critical levels is accompanied by serious disability. However, the amount of carbohydrate in the body at one time is very small. It would sustain life for only a fraction of a day. Consequently, the infant must be offered carbohydrate frequently to yield a generous proportion, usually over half, of the total caloric intake.

The breast-fed infant receives about 12 gms. of carbohydrate per kilo body weight, while the artificially fed infant receives about 8 to 14 gms. per kilo. In the choice of an added carbohydrate, we must consider adaptability, tolerance, digestability, absorption, fermentability, and irritation to the intestines.

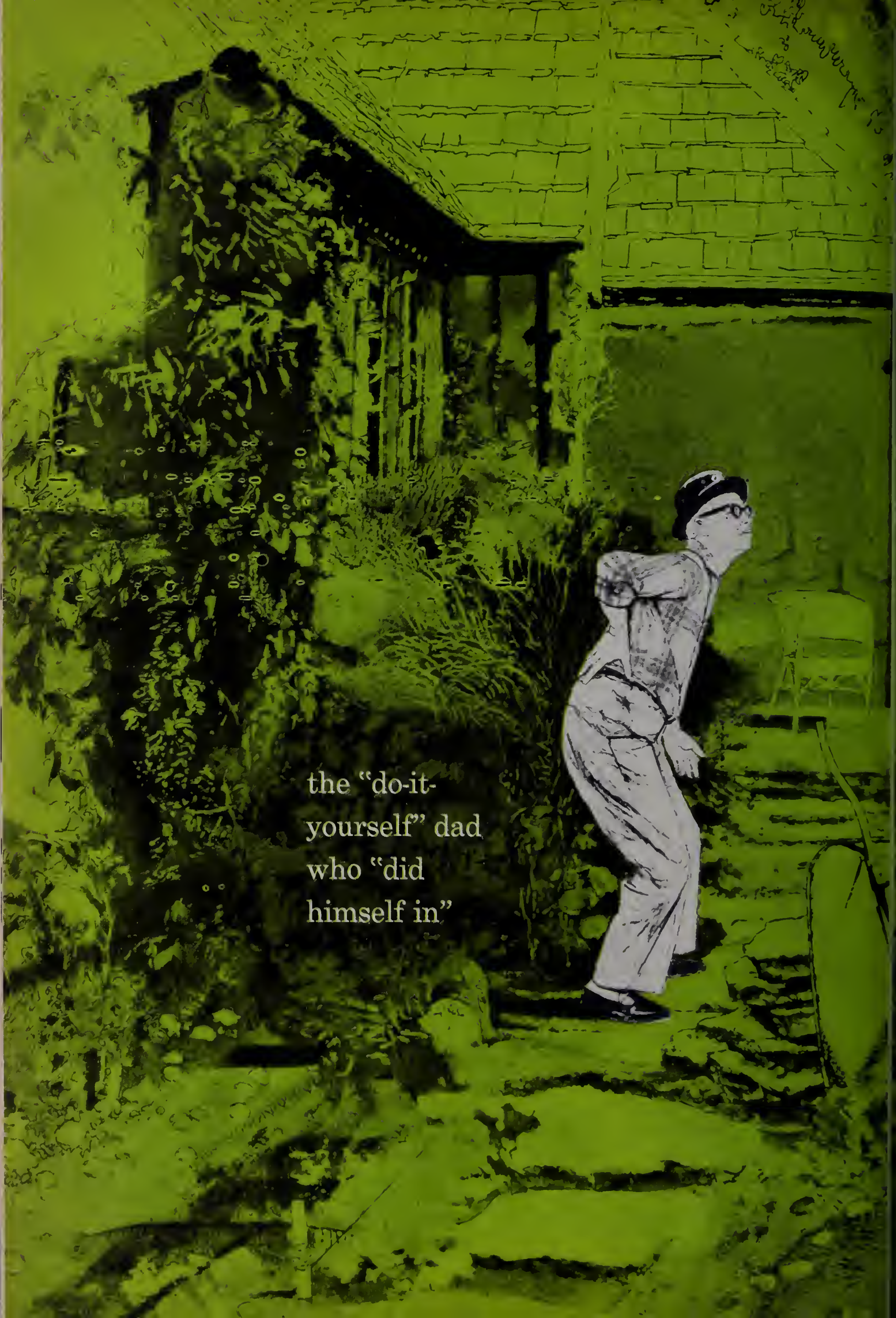
The same problems of infant feeding recur from generation to generation, but solutions may differ with each era. The carbohydrate requirement for all infants is as completely fulfilled by KARO® Syrup today as a generation ago. Whatever the type of milk adapted to the individual infant, KARO Syrup may be added confidently because it is a balanced mixture of low-molecular weight sugars, readily miscible, well tolerated, palliative, hypoallergenic, resistant to fermentation in the intestine, easily digestible, readily absorbed and non-laxative. It is readily available in all food stores.

MEDICAL DIVISION
CORN PRODUCTS REFINING CO.
17 Battery Place, New York 4, N. Y.

**INFANTS' CALORIC REQUIREMENTS**

| AGE (Months) | CALS. Per 24 hrs. | CALS. Per Kilo | CALS. Per Pound |
|---|---|---|---|
| 1 | 500 | 115 | 52 |
| 2 | 625 | | |
| 3 | 675 | | |
| 4 | 725 | 110 | 50 |
| 5 | 750 | | |
| 6 | 800 | | |
| 7 | 825 | 100 | 45 |
| 8 | 850 | | |
| 9 | 875 | | |
| 10 | 900 | 95 | 43 |
| 11 | 950 | | |
| 12 | 1000 | | |
| 24 | 1200 | 90 | 40 |

Produced by
Corn Products Refining Co.



the "do-it-yourself" dad who "did himself in"

# lumbago

For persons who overestimate their physical capacity—as with this do-it-yourself dad—chronic fibrositis may be a postscript to a weekend of accomplishment.

SIGMAGEN therapy is encouraged in the treatment of chronic fibrositis to alleviate pain and prevent progression of the disorder to fibrosis and calcification.

SIGMAGEN provides doubly protective corticoid-salicylate therapy. METICORTEN® (prednisone) and acetylsalicylic acid are combined to provide additive antirheumatic benefits and rapid analgesic effect. These dual clinical values are enhanced by aluminum hydroxide to counteract excess gastric acidity and by ascorbic acid to help meet the increased need for this vitamin during stress situations.

Therapy should be individualized. *Acute conditions:* 2 or 3 tablets 4 times daily. Following desired response, gradually reduce daily dosage and discontinue. *Subacute or chronic conditions:* Initially as above. After satisfactory control is obtained, gradually reduce the daily dosage to minimum effective maintenance level. For best results administer after meals and at bedtime.

Precautions: Because SIGMAGEN contains prednisone, the same precautions and contraindications observed with this steroid apply also to the use of SIGMAGEN.

*for patients who go beyond their physical capacity*

protective corticoid-salicylate therapy

**SIGMAGEN®**

corticoid-analgesic compound Tablets

| | | | |
|---|---|---|---|
| Prednisone | 0.75 mg. | Aluminum hydroxide | 75 mg. |
| Acetylsalicylic acid | 325 mg. | Ascorbic acid | 20 mg. |

SG-J-687

Schering

# no lagging appetites with INCREMIN*

LYSINE-VITAMIN SUPPLEMENT LEDERLE

Finicky eaters are headed for a fast nutritional build-up with INCREMIN — tasty appetite stimulant.

INCREMIN offers l-Lysine for improved protein utilization, and essential vitamins for their stimulating effect on appetite.

Tasty INCREMIN is available in either Drops or Tablets. Caramel-flavored Tablets may be orally dissolved, chewed or swallowed. Cherry-flavored Drops may be mixed with milk, formula or other liquid. Tablets: bottles of 30. Drops: plastic dropper-type bottle of 15 cc.

*Each* INCREMIN Tablet
or each cc. of INCREMIN Drops *contains:*

| | | |
|---|---|---|
| l-Lysine | 300 mg. | Pyridoxine ($B_6$) 5 mg. |
| Vitamin $B_{12}$ | 25 mcgm. | (INCREMIN Drops contain 1% alcohol) |
| Thiamine ($B_1$) | 10 mg. | |

Dosage: only 1 INCREMIN Tablet or 10-20 INCREMIN Drops daily.

*Reg. U.S. Pat. Off

LEDERLE LABORATORIES DIVISION
AMERICAN CYANAMID COMPANY
PEARL RIVER, NEW YORK

Lederle

assure her

***a more serene, a happier pregnancy***
***. . . without nausea***

give her **'MAREDOX'**® brand

Cyclizine Hydrochloride and Pyridoxine Hydrochloride

because 'Maredox' gives the expectant mother new-found relief from morning sickness.

*relieves nausea and vomiting*
and
*counteracts pyridoxine deficiency*
*in pregnancy*

One tablet a day, taken either on rising or at night, is all that most women require.

Each tablet of 'Maredox' contains:
'Marezine'® brand Cyclizine Hydrochloride. . . . . 50 mg.
Pyridoxine Hydrochloride . . . . . . . . . . . . . . . . 50 mg.

**BURROUGHS WELLCOME & CO. (U.S.A.) INC.,** Tuckahoe, New York

# Combined Estrogen-Androgen Therapy Proved 96% Effective in Preventing Postpartum Breast Engorgement[1]

## *Dual Steroid Approach also Successful in Osteoporosis*

**Of more than 4 million babies born in the United States this year, approximately 75 per cent will not be breast fed.[2] Combined estrogen-androgen therapy will effectively suppress lactation and prevent postpartum breast engorgement in these mothers.**

**Osteoporosis also ranks high on the list of present day medical problems because of the increasing older population.**

**In either condition, combined estrogen-androgen therapy produces a complementary metabolic response with little or no side effects.**

In postpartum breast engorgement the rationale of therapy is explained as follows: During pregnancy, the high estrogen titer exerts an inhibitory effect on the anterior pituitary, thereby preventing the release of the lactogenic hormone, prolactin. Postpartum, the estrogen level drops off suddenly, and allows the release of previously inhibited prolactin which is now free to initiate the flow of milk. Sex hormones re-establish pituitary inhibition, thus arresting the lactating process.

In Fiskio's study,[1] "Premarin" with Methyltestosterone effectively relieved postpartum breast engorgement and suppressed lactation in 96.2 per cent of his group of 267 patients. Notably absent were breast abscesses, nausea, vomiting, excessive lochia, withdrawal bleeding or virilization. Menses were re-established after the normal six week period. The lack of mental depression during the puerperium was especially gratifying.

Osteoporosis results from impairment of osteoblastic activity, and gonadal hormone decline is possibly the most prevalent cause. Estrogen stimulates osteoblastic activity and increases calcium and phosphorus retention, while androgen exerts an anabolic or protein-forming action. Prognosis for bone recalcification is good, providing therapy is continued for extended periods. The possibility of side effects is minimized because the two hormones exert an opposing action on sex-linked tissue.

Estrogen and androgen as combined in "Premarin"® with Methyltestosterone provide a treatment of choice in osteoporosis.

Recommended Dosage: (Directions refer to *yellow* tablets.)

*Postpartum breast engorgement* — Short duration therapy — (one week) — 3 tablets every four hours for five doses — then 2 tablets daily for rest of week. "Step-down" therapy — (10 to 15 days) — 1st day — 4 tablets; 2nd day — 3 tablets; 3rd day — 2 tablets; thereafter, 1 tablet daily for 10 to 15 days. *It is important to start therapy as soon as possible after delivery.*

*Osteoporosis:* 2 tablets daily, for the first three weeks. Then 1 tablet daily thereafter. In the female. it is suggested that combined therapy be given in 21 day courses with a rest period of about one week between courses, and be continued for 6 to 12 months; following this period, the patient may be maintained with cyclic therapy employing "Premarin" Tablets alone.

Supplied in two potencies: *Yellow tablets* — each contains 1.25 mg. conjugated estrogens, equine ("Premarin") and 10 mg. methyltestosterone. *Red tablets* — each contains 0.625 mg. and 5 mg. respectively. Bottles of 100 and 1,000.

*Bibliography:* Available on request.

Ayerst Laboratories
New York, N. Y. • Montreal, Canada 5740

PREVENT P.P.B.E.

Postpartum breast engorgement was satisfactorily prevented in 96 per cent of a series of 267 patients who received "Premarin" with Methyltestosterone promptly after delivery. No serious side effects were noted, and the absence of mental depression in the puerperium was notable. (Fiskio, P.W.: GP 11:70 (May) 1955.)

"PREMARIN"® WITH METHYLTESTOSTERONE

for combined estrogen-androgen therapy

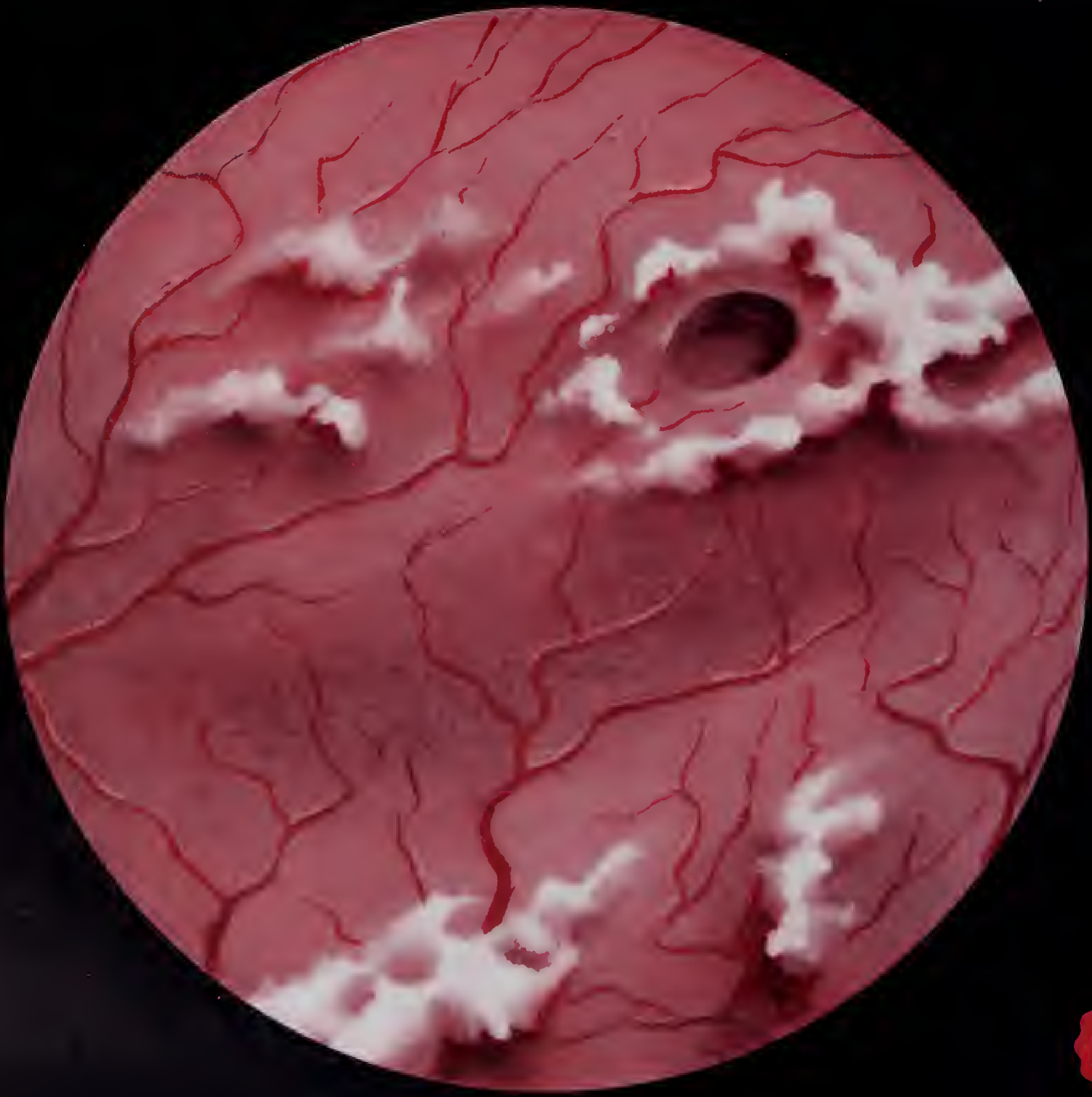
Ayerst® Ayerst Laboratories • New York, N. Y. • Montreal, Canada 5737

*Single sulfonamide specifically for urinary tract infections —unexcelled in long-term therapy.* Gram for gram "Thiosulfil" is unexcelled for effective bacteriostatic action against a broad variety of urinary tract pathogens. High solubility, complete absorption, minimal acetylation, and negligible penetration into red blood cells ensure rapid and effective action with minimal side effects.

Ayerst Laboratories • New York, N. Y. • Montreal, Canada

*direct / effective* **"THIOSULFIL"®**

(Brand of sulfamethizole)



Ayerst®

Cystitis, *showing typical inflammatory reaction of the bladder mucosa with mucopurulent areas.*

Physicians' and Surgeons'
**PROFESSIONAL**
**Liability Insurance**

Provides Complete Malpractice Protection, Avoids Unpleasant Situations By Immediate Thorough Investigation And Saves You The High Costs Of Litigation.

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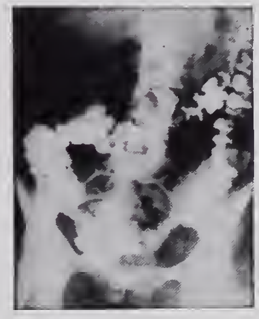
Wilmington, Delaware

when anxiety and tension "erupts" in the G. I. tract...

**in spastic and irritable colon**



**PATHIBAMATE***

Meprobamate with PATHILON® Lederle

*Combines* Meprobamate (*400 mg.*) the most widely prescribed tranquilizer... helps control the "emotional overlay" of spastic and irritable colon—without fear of barbiturate loginess, hangover or habituation ...*with* PATHILON (*25 mg.*) the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

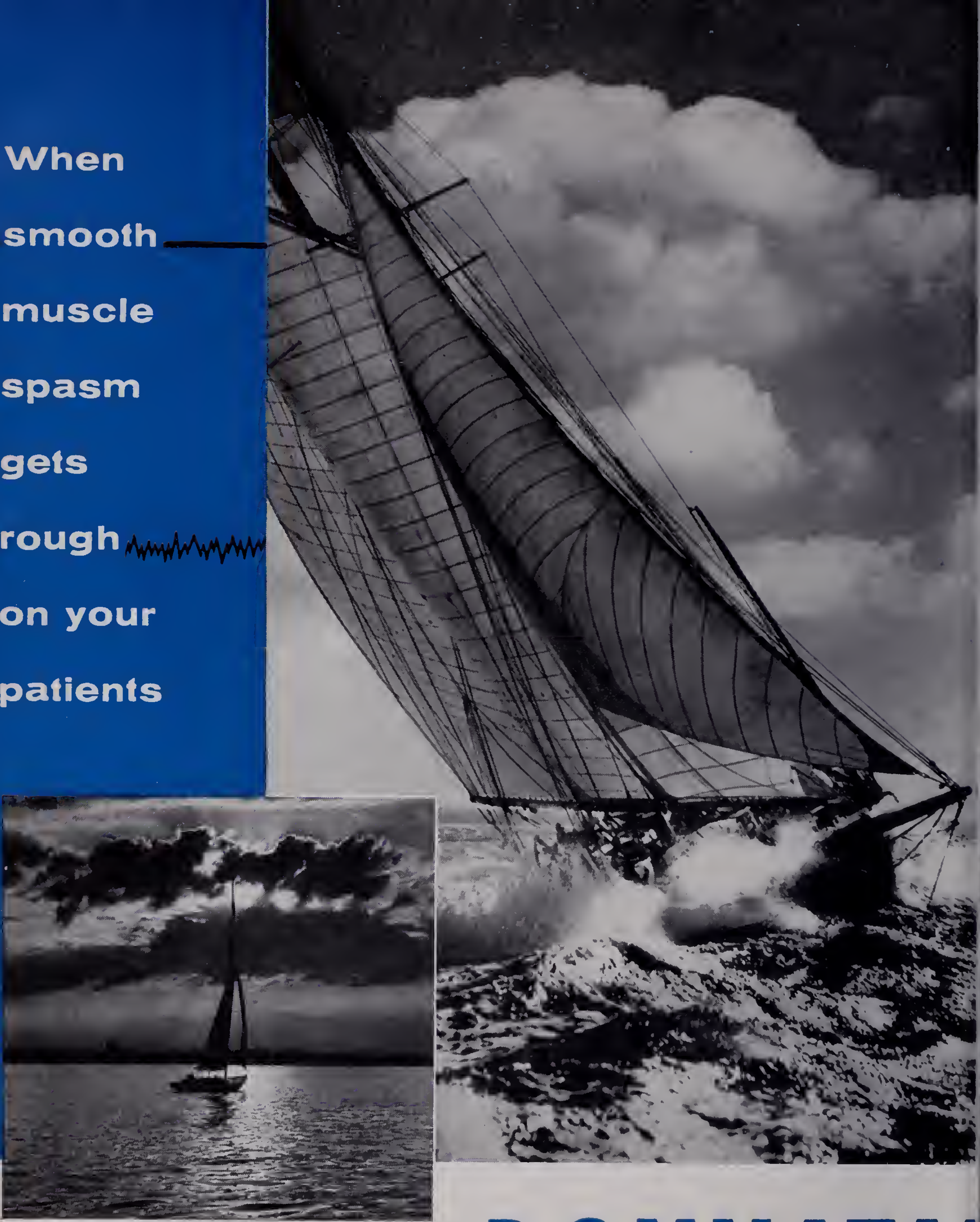
*Dosage:* 1 tablet t.i.d. at mealtime. 2 tablets at bedtime. *Supplied:* Bottles of 100, 1,000.

*Trademark ® Registered Trademark for Tridihexethyl Iodide Lederle

Lederle

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK

When smooth muscle spasm gets rough on your patients



Like oil on troubled waters...

# DONNATAL

**provides superior spasmolysis**
through provision of natural belladonna alkaloids in optimal ratio, with phenobarbital

*Formula*
DONNATAL TABLETS
DONNATAL CAPSULES
DONNATAL ELIXIR (per 5 cc.)

| | |
|---|---|
| Hyoscyamine Sulfate | 0.1037 mg. |
| Atropine Sulfate | 0.0194 mg. |
| Hyoscine Hydrobromide | 0.0065 mg. |
| Phenobarbital (¼ gr.) | 16.2 mg. |

DONNATAL EXTENTABS®
(Extended Action Tablets)

Each Extentab (equivalent to 3 Tablets) provides sustained 1-tablet effects...evenly, for 10 to 12 hours — all day or all night on a single dose.

**A. H. ROBINS CO., INC.,** RICHMOND 20,

*optimal dosages for* ATARAX,
*based on thousands of case histories:*

**25** *mg. (t.i.d.)*

*for these* **25** *adult indications:*

**TENSION SENILE ANXIETY MENOPAUSAL SYNDROME ANXIETY PREMENSTRUAL TENSION PHOBIA HYPOCHONDRIASIS TICS FUNCTIONAL G. I. DISORDERS PRE-OPERATIVE ANXIETY HYSTERIA PRENATAL ANXIETY • AND ADJUNCTIVELY IN CEREBRAL ARTERIOSCLEROSIS PEPTIC ULCER HYPERTENSION COLITIS NEUROSES DYSPNEA INSOMNIA PRURITIS ASTHMA ALCOHOLISM DERMATITIS PARKINSONISM PSORIASIS**

*perhaps the safest ataraxic known*

PEACE OF MIND ATARAX®
(BRAND OF HYDROXYZINE)
*Tablets-Syrup*

**10** *mg. (t.i.d.)*

*for these* **10** *pediatric indications*

**ANXIETY TICS HOSTILITY NIGHTMARES HYPEREMOTIVITY RESTLESSNESS TEMPER TANTRUMS HOSPITAL FEAR • AND ADJUNCTIVELY IN ASTHMA ENURESIS**

*Consider these 3* ATARAX *advantages:*

- 9 of every 10 patients get release from tension, without mental fogging
- extremely safe—no major toxicity is reported
- flexible medication, with tablet and syrup form

*Supplied:*

In tiny 10 mg. (orange) and 25 mg. (green) tablets, bottles of 100.

ATARAX Syrup, 10 mg. per tsp., in pint bottles. Prescription only.

Roerig
New York 17, New York

# Meat...

## *and the Need for Adequate Protein in Therapeutic Nutrition*

Liberal protein intake is considered to be of therapeutic value in a wide variety of pathologic conditions.[1] Advances in the understanding of protein metabolism indicate that dietary protein should provide amino acids in proportions paralleling physiologic needs.[2, 3] In experimental studies with animals, low protein diets supplying amino acids disproportionate to needs have been shown to effect physiologic harm by depressing growth, by inducing amino acid and B-vitamin deficiencies, and by causing deposition of fat in the liver.[4]

Hence not only the *amount* of protein but also its *quality* (in terms of its amino acid proportions) is important. It has been suggested[1] that for therapeutic purposes about two-thirds of the ingested protein come from foods of animal source, whose protein resembles human body protein in amino acid interrelationships. Depending on the needs of the patient, the therapeutic diet may supply 1.0 or more grams of protein per kilogram of body weight. Adequate calorie intake is required to protect the dietary protein from dissipation for energy purposes.

Meat, with its high content of top-quality protein, holds a prominent place among foods which supply this essential for establishing satisfactory levels of amino acids in physiologic proportions. It also contributes valuable amounts of B vitamins and essential minerals—nutrients which play a basic role in intermediate metabolism.

---

1. Proudfit, P. T., and Robinson, C. H.: Nutrition and Diet Therapy, ed. 11, New York, The Macmillan Company, 1955, pp. 314-320.
2. Harper, A. E.: Amino Acid Imbalance, Toxicities and Antagonisms, Nutrition Rev. *14*:225 (Aug.) 1956.
3. Amino Acid Requirements of Adult Man, Nutrition Rev. *14*:232 (Aug.) 1956.
4. Amino Acid Imbalance and Supplementation, Editorial, J.A.M.A. *161*:884 (June 30) 1956. Council on Foods and Nutrition, American Medical Association: Importance of Amino Acid Balance in Nutrition, J.A.M.A. *158*:655 (June 25) 1955.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

**American Meat Institute**
Main Office, Chicago...Members Throughout the United States

among nonhormonal antiarthritics...
unexcelled in
therapeutic potency

**BUTAZOLIDIN®**
(phenylbutazone Geigy)

In the nonhormonal treatment of arthritis and allied disorders no agent surpasses Butazolidin in potency of action.

Its well-established advantages include remarkably prompt action, broad scope of usefulness, and no tendency to development of drug tolerance. Being nonhormonal, Butazolidin causes no upset of normal endocrine balance.

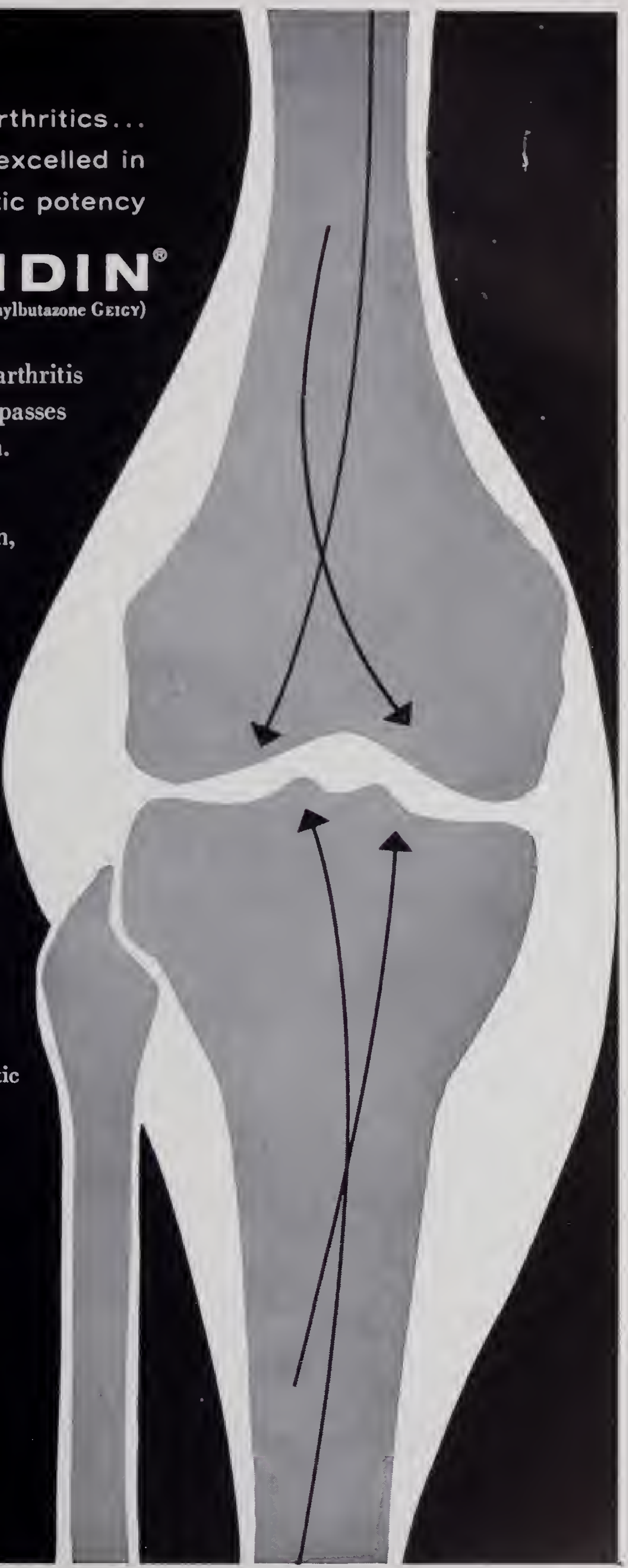
Butazolidin relieves pain, improves function, resolves inflammation in:
Gouty Arthritis
Rheumatoid Arthritis
Rheumatoid Spondylitis
Painful Shoulder Syndrome

Butazolidin being a potent therapeutic agent, physicians unfamiliar with its use are urged to send for detailed literature before instituting therapy.

Butazolidin® (phenylbutazone Geigy). Red coated tablets of 100 mg.

**GEIGY**
Ardsley, New York

77957



# *"...especially suitable for out-patient and office use."*†

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† Ayd, F. J., Jr.: The Treatment of Ambulatory and Hospitalized Psychiatric Patients with Trilafon, presented at Ann. Meet., Am. Psychiat. Assoc., Chicago, Ill., May 13-17, 1957.

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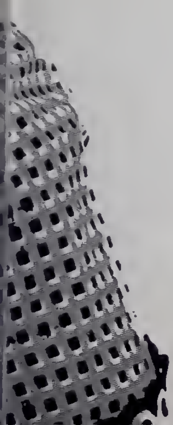

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## MEDICAL SOCIETY OF DELAWARE
## 168TH
## ANNUAL MEETING

**Scottish Rite Cathedral 20 W. Lea Boulevard, Wilmington**

**October 25-26, 1957**

| | | |
|---|---|---|
| **Sunday, October 20** | **3:00 P.M.** | **House of Delegates**<br>Meets at the Delaware Academy of Medicine, Lovering Avenue and Union Street, Wilmington. |
| | **6:30 P.M.** | **Supper for Delegates**<br>Delaware Academy of Medicine. |
| **Friday, October 25** | **1:00 P.M.** | **Registration and Exhibits**<br>Scottish Rite Cathedral. |
| | **1:30 P.M.** | **The Doctor and The Trust Department**<br>Rodman Ward, Vice President and Trust Officer, Equitable Security Trust Co. |
| | **2:15 P.M.** | **The Doctor and His Taxes**<br>H. L. Brown, District Director, Internal Revenue Service, U.S. Treasury Dept. |
| | **3:00 P.M.** | **Intermission — Exhibits** |
| | **3:30 P.M.** | **The Doctor's Investment Program**<br>Panel Discussion<br>*Moderator,* Paul D. Lovett, Vice President and Trust Officer, Delaware Trust Co.<br>*Senior Securities*—George Winchester, Partner, Laird, Bissell and Meeds.<br>*Common Stocks*—Joshiah M. Scott, Laird and Company, Inc.<br>*Real Estate*—Arnold Goldsborough, Arnold Goldsborough, Realtor.<br>*Insurance*—Edward G. Braun, Jr., District Manager, Aetna Life, J. A. Montgomery, Inc. |
| | **5:00 P.M.** | **Adjournment to Exhibits** |
| | **8:00 P.M.** | **Registration — Evening Session** |
| | **8:30 P.M.** | **Report of the House of Delegates**<br>Norman L. Cannon, M.D., Secretary. |
| | **8:40 P.M.** | **Presidential Address**<br>Roger Murray, M.D. |
| | **9:00 P.M.** | **Dysmenorrhea — Panel**<br>*Moderator,* O. N. Stern, M.D., Wilmington.<br>H. Keith Fischer, M.D., Assistant Professor of Psychiatry, Temple University School of Medicine.<br>Laurence L. Fitchett, M.D., Milford, General Practice.<br>Abraham S. Rakoff, M.D., Professor of Obstetrical and Gynecological Endocrinology, Jefferson Medical College. |
| | **10:30 P.M.** | **Refreshments** |

| | | |
|---|---|---|
| Saturday, Oct. 26 | 9:00 A.M. | **Registration — Exhibits** |
| | 9:30 A.M. | **"Blow-Out Patch" of Hernia with Steel Cloth**<br>Daniel J. Preston, M.D., and Charles F. Richards, M.D. |
| | 10:00 A.M. | **Advances in Neuro-Surgery**<br>Philip D. Gordy, M.D. |
| | 10:30 A.M. | **Intermission — Exhibits** |
| | 11:00 A.M. | **This is Plastic Surgery?**<br>James T. Metzger, M.D. |
| | 11:30 A.M. | **Election of President-Elect** |
| | 12:00 noon | **Adjournment — Exhibits** |
| | 12:30 P.M. | **Luncheon as Guests of the New Castle County Medical Society** |
| | 1:30 P.M. | **Malpractice — Prevention and Protection**<br>John V. Hopkins, M.D., Surgical Director, U. S. Fidelity and Guaranty Co.<br>*Discussion by* David F. Anderson, Esq., Counsel, Medical Society of Delaware, *and* Emil R. Mayerberg, M.D., Chairman, Grievance Board, Medical Society of Delaware. |
| | 2:15 P.M. | **Uterine and Cervical Carcinoma — Panel**<br>*Presented in cooperation with the Delaware Division, American Cancer Society.*<br>*Moderator,* John F. W. King, M.D., Director of Services, American Cancer Society.<br>John K. Frost, M.D., Professor of Pathology, University of Maryland Hospital.<br>Michael J. Jordan, M.D., Assistant Professor of Gynecology and Obstetrics, New York University School of Medicine, (Bellevue).<br>George C. Lewis, Jr., M.D., Assistant Professor of Gynecology and Obstetrics, University of Pennsylvania Hospital.<br>Antolin Raventos, M.D., Assistant Professor of Radiology, University of Pennsylvania Hospital. |
| | 3:00-3:30 P.M. | **Intermission — Exhibits** |
| | 3:30 P.M. | **Continuation of Panel** |
| | 5:00 P.M. | **Adjournment — Exhibits** |
| | 7:00 P.M. | **Cocktails — Wilmington Country Club** |
| | 7:30 P.M. | **Annual Banquet — Wilmington Country Club**<br>Guest Speaker — Frank Coleman, M.D., Des Moines, Iowa |

## SCIENTIFIC EXHIBITS

**Diagnosis of Glaucoma in General Practice**
Ophthalmologists of Delaware.

**Diagnosis of Histoplasmosis**
Park W. Huntington, M.D., and Elvyn G. Scott, Bacteriologist.

**Dry-Freezing and Storage of Arteries**
Walter W. Moore, M.D.

**Gross Pathology Demonstrations**
Delaware Pathological Society.

**Malignant Lymphoma (Hodgkin's Disease and Lymphosarcoma):**
**Pathology, Treatment and Prognosis for Care**
Joseph W. Abbiss, M.D., Robert W. Frelick, M.D., and John F. Hynes, M.D.

**Operation of the Delaware Hospital Home Care Program**
Home Care Committee, Delaware Hospital.

**Operation of the Dependents Medical Care Program (Medicare)**
U.S. Department of the Army

**Research Projects on the Blood and Cardiovascular System**
O. J. Pollak, M.D.

**Thoracic Surgery and Pulmonary Studies**
Frank T. O'Brien, M.D.

**Urological Case Histories**
Urologists of Delaware

**World Medical Association**
O. J. Pollak, M.D., Delaware Chairman.

## TECHNICAL EXHIBITS

Abbott Laboratories
Amsterdam Brothers, Inc.
J. Beeber Company, Inc.
Bellevue Surgical Supply Co.
Delaware Anti-Tuberculosis Society
Delaware League for Planned Parenthood
Delaware State Board of Health
Dictaphone Corporation
Doho Chemical Corporation
Eaton Laboratories
International Business Machines Corp.
Laird, Bissell and Meeds
Lederle Laboratories
Charles Lentz and Sons
Eli Lilly & Company
Mead Johnson and Company
John G. Merkel & Sons
Milex of New York
Monroe Calculating Machine Company
Nicholas J. Reilly
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W. B. Saunders Company
G. D. Searle and Company
U. S. Vitamin Corporation
Winthrop Laboratories
Wyeth Laboratories

# TWENTY-EIGHTH ANNUAL MEETING
# OF THE WOMAN'S AUXILIARY

To the Medical Society of Delaware
Saturday, October 26, 1957

## BRANDYWINE COUNTRY CLUB

| | |
|---|---|
| *President*<br>Mrs. H. T. McGuire, New Castle | *Recording Secy.*<br>Mrs. W. T. Reardon, Wilmington |
| *President-Elect*<br>Mrs. R. B. Thomas, Wilmington | *Corresponding Secy.*<br>Mrs. S. W. Bartoshesky, Wilmington |
| *Vice-President*<br>Mrs. L. L. Fitchett, Milford | *Treasurer*<br>Mrs. H. J. Laggner, Smyrna |

10:00 a.m. Registration and Hospitality

10:30 a.m. General Session—Mrs. H. Thomas McGuire, Presiding

Invocation

Pledge of Loyalty

Address of Welcome—Mrs. John W. Alden

Response—Mrs. L. L. Fitchett

Presentation of Convention Chairman
Mrs. Peter J. Olivere
Mrs. Joseph J. Davalos—Co-Chairman

Introductions—Honored Guests

Roll Call of Delegates—
Mrs. William T. Reardon

Minutes of 27th Annual Meeting

Treasurer's Report—Mrs. H. J. Laggner

Reports of County Presidents
New Castle—Mrs. D. W. MacKelcan
Kent—Mrs. W. C. Pritchard, Jr.
Sussex—Mrs. W. B. Cooper, Jr.

Report of 1957 National Convention Delegates—
Mrs. D. W. MacKelcan
Mrs. J. W. Alden

Report of the President—Mrs. H. T. McGuire

Report of the Nominating Committee—
Mrs. Willard F. Preston

Election of Officers

Installation of Officers—Mrs. R. W. Comegys

Adjournment

1:00 P.M. Luncheon—Brandywine Country Club

Toastmistress—Mrs. Joseph M. Barsky, Sr.

Invocation—Rev. Henri I. Foltz

Address—President of the Medical Society of Delaware—Roger Murray, M.D.

Greetings—Honorable J. Caleb Boggs

Introduction of Advisory Committee to Auxiliary

Guest Speaker—Mr. Walter O'Keefe—New York City

Presentation of Past Presidents' Pins

Presentation of Gavel and President's Pin

Inaugural Message—Mrs. Roger B. Thomas

Adjournment

7:00 P.M. Dinner with members of the Medical Society of Delaware—Dress Optional

DELAWARE STATE MEDICAL JOURNAL

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VOLUME 29 SEPTEMBER, 1957 NUMBER 9

# CALCULATION OF DIABETIC DIETS SIMPLIFIED

MAYTON ZICKEFOOSE, M.S.*

Simplification of meal planning for the person with diabetes was the prime objective of the committee of the American Diabetic Association which cooperated with the American Diabetes Association and the Chronic Disease Program of the U. S. Public Health Service[1] in working out materials for use with the diabetic patient. This action was prompted by the difficulties encountered by patients in following dietary regimens and by the professional team of physician, dietetian, and nurse in prescribing and interpreting the diet to the patient. Some of the problems encountered were:

Lack of variety due to the limited choice of foods resulting in a monotonous menu;

Numerous food restrictions often without scientific basis and frequently conflicting;

Inflexibility in the dietary plan, making it difficult to adjust the diet to the family meal plan, to eating away from home, or to cultural or economic factors;

Lack of instructions regarding food preparation to increase palatability of the diet;

Complicated and impractical measurements of sizes of servings of food; and

Nutritional inadequacy of diet, especially in relation to calories.

The first report concerning these materials was given in 1950.[2] The fundamental tools for planning diabetic diets according to the recommended simplified method included a brief table of food values for calculating diabetic diets as shown in Table 1;[2] a set of six lists[3] of foods in a booklet, "Meal Planning with Exchange Lists" (in it, foods having a more or less common composition are grouped together in such quantities that one food can be exchanged for another in each group); and an easy method of calculating diabetic diets based on these food values and food lists (Table 8).

TABLE 1
Food values for calculating diabetic diets

| GROUP | AMOUNT | WEIGHT | CARBO-HYDRATE | PRO-TEIN | FAT | ENERGY |
|---|---|---|---|---|---|---|
| | | gm. | gm. | gm. | gm. | calories |
| Milk, whole | ½ pint | 240 | 12 | 8 | 10 | 170 |
| Vegetable, Group A | as desired | — | — | — | — | — |
| Vegetable, Group B | ½ cup | 100 | 7 | 2 | — | 36 |
| Fruit | varies | — | 10 | — | — | 40 |
| Bread exchanges | varies | — | 15 | 2 | — | 68 |
| Meat exchanges | 1 ounce | 30 | — | 7 | 5 | 73 |
| Fat exchanges | 1 teaspoon | 5 | — | — | 5 | 45 |

---

* Nutrition Consultant, State Board of Health.

Foods of similar composition have been combined into food exchange lists. The exchange lists were set up as shown in the following tables.

## MILK

Several forms of cow's milk are available, such as evaporated, dried, or skim milk. These types of milk have been combined into one table called the "Milk Exchange List" (Table 2). In the amounts listed, one may be substituted for another since they are all approximately equal in composition.

### TABLE 2

List 1 — Milk Exchanges
Per serving: carbohydrate, 12 gm.; protein, 8 gm.; fat, 10 gm.

| TYPE OF MILK | APPROX. MEASURE |
|---|---|
| Whole milk (plain or homogenized) | 1 cup (8 oz.) |
| Skim milk* | 1 cup |
| Evaporated milk | ½ cup |
| Powdered whole milk | ¼ cup |
| Powdered skim milk (non-fat dried milk)* | ¼ cup |
| Buttermilk (from whole milk) | 1 cup |
| Buttermilk (from skim milk)* | 1 cup |

* Since these forms of milk contain no fat, two fat exchanges may be added to the diet when they are used.

## VEGETABLES AND FRUITS

The vegetables are classified into three different lists. The first group is known as Group A (Table 3). These contain 3 grams or less of carbohydrate per 100-gram serving. They need not be figured in the diet unless more than 200 grams are used at a meal.

### TABLE 3

List 2 — Vegetable Exchanges
GROUP A

Negligible carbohydrates, protein, and calories if 1 cup (200 gm.) or less is used

- Asparagus
- Beans, string, young
- Broccoli*
- Brussels sprouts
- Cabbage
- Cauliflower
- Celery
- Chicory*
- Cucumbers
- Escarole*
- Eggplant
- Greens*
  - Beet greens
  - Chard, Swiss*
  - Collard
  - Dandelion
  - Kale
  - Mustard
  - Spinach
  - Turnip greens
- Lettuce
- Mushrooms
- Okra
- Pepper*
- Radish
- Sauerkraut
- Squash, summer
- Tomatoes*
- Watercress*

The second group of vegetables in Table 3 contains more carbohydrate. They are listed as Group B.

The remainder of the vegetables contain appreciably more carbohydrate. They are included in the list of bread exchanges (Table 5).

#### GROUP B

Per serving: carbohydrate, 7 gm.; protein, 2 gm.
(1 serving = ½ cup = 100 gm.)

- Beets
- Carrots*
- Onions
- Peas, green
- Pumpkin*
- Rutabaga
- Squash, winter*
- Turnip

* These vegetables have high vitamin A value. At least one serving should be included in the diet each day.

Fruit is another source of carbohydrate. The content differs with the variety in fruit as it does in vegetables. In Table 4 the fruits have been listed in household measurements. Since each fruit in the amount listed contains approximately 10 grams carbohydrate, one may be exchanged for the other.

### TABLE 4

List 3 — Fruit Exchanges**
Carbohydrate—10 gm. per serving

| | |
|---|---|
| Apple (2-in. diameter) | 1 |
| Applesauce | ½ cup |
| Apricots: | |
| Fresh | 2 medium |
| Dried | 4 halves |
| Banana | ½ small |
| Blackberries | 1 cup |
| Raspberries | 1 cup |
| Strawberries* | 1 cup |
| Cantaloupe (6-in. diameter)* | ¼ |
| Cherries | 10 large |
| Dates | 2 |
| Figs: | |
| Fresh | 2 large |
| Dried | 1 small |
| Grapefruit* | ½ small |
| Grapefruit juice* | ½ cup |
| Grapes | 12 |
| Grape juice | ½ cup |
| Honeydew melon (7-in. diameter) | ⅛ |
| Mango | ½ small |
| Orange* | 1 small |
| Orange juice* | ½ cup |
| Papaya | ⅓ medium |
| Peach | 1 medium |
| Pineapple | ½ cup |
| Pineapple juice | ⅓ cup |
| Plums | 2 medium |
| Prunes, dried | 2 medium |
| Raisins | 2 tablespoons |
| Tangerine | 1 large |
| Watermelon | 1 cup |

**Unsweetened canned fruits may be used in the same amount as listed for fresh fruit.

*These fruits are rich sources of ascorbic acid. At least one serving should be included in the diet each day.

## BREAD, CEREALS, AND VEGETABLES OF HIGH CARBOHYDRATE CONTENT

Many foods of high carbohydrate content were included in one list called bread exchanges (Table 5); this was to make it easier for all those concerned with the planning of diabetic diets.

### TABLE 5

List 4 — Bread Exchanges
Per serving: Carbohydrate, 15 gm.; protein, 2 gm.

| FOOD | APPROX. MEASURE |
|---|---|
| Bread | 1 slice |
| Biscuit, roll (2-in. diameter) | 1 |
| Muffin (2-in. diameter) | 1 |
| Cornbread (1½-in. cube) | 1 |
| Flour | 2½ tablespoons |
| Cereal | |
| Cooked | ½ cup |
| Dry (flake and puffed) | ¾ cup |
| Rice and grits, cooked | ½ cup |
| Spaghetti and noodles, cooked | ½ cup |
| Crackers | |
| Graham (2½-in. square) | 2 |
| Oysterettes | 20 (½ cup) |
| Saltines (2-in. square) | 5 |
| Soda (2½-in. square) | 3 |
| Round, thin (1½-in. diam.) | 6-8 |
| Vegetables | |
| Beans and peas, dried, cooked (Lima, navy, split pea, cowpeas) | ½ cup |
| Beans, Lima, fresh | ½ cup |
| Beans, baked, no pork | ¼ cup |
| Corn, sweet | ⅓ cup |
| Corn, popped | 1 cup |
| Parsnips | ⅔ cup |
| Potatoes, white—baked or boiled—(2-in. diameter) | 1 |
| Potatoes, white—mashed | ½ cup |
| Potatoes, sweet or yams | ¼ cup |
| Sponge cake, plain (1½-in. cube) | 1 |
| Ice cream (omit 2 Fat Exchanges) | ½ cup |

## MEAT, FISH, POULTRY, EGGS, AND CHEESE

The foods which are high in protein have been listed in amounts that are equal approximately in protein and fat content to 1 ounce meat. Diets which include odd amounts of meat such as 75 or 105 grams are difficult to measure. Servings of 1, 2, or 3 ounces are more practical for the patient, since the food is usually purchased in these amounts.

### TABLE 6

List 5 — Meat Exchanges
Per serving: protein, 7 gm.; fat, 5 gm.

| FOOD | APPROX. MEASURE |
|---|---|
| Meat and poultry, medium fat (beef, lamb, pork, liver, chicken) | 1 ounce |
| Cold cuts (4½-in. square, ⅛-in. thick) | 1 slice |
| Frankfurter (8 or 9 per pound) | 1 |
| Fish | |
| Cod, mackerel | 1 ounce |
| Salmon, tuna, crab | ¼ cup |
| Oysters, shrimp, clams | 5 small |
| Sardines | 3 medium |
| Cheese | |
| Cheddar or American | 1 ounce |
| Cottage | ¼ cup |
| Egg | 1 |
| Peanut butter* | 2 Tablespoons |

* Limit use or adjust carbohydrate (deduct 5 grams carbohydrate per serving when used in excess of one exchange).

## FATS

There are fewer variable factors involved in fats. The value of 5 grams fat per fat exchange was used as in Table 7.

### TABLE 7

List 6 — Fat Exchanges
Fat — 5 gm. per serving

| FOOD | APPROX. MEASURE |
|---|---|
| Butter or margarine | 1 teaspoon |
| Bacon, crisp | 1 slice |
| Cream | |
| Light, 20% | 2 tablespoons |
| Heavy, 40% | 1 tablespoon |
| Cream cheese | 1 tablespoon |
| French dressing | 1 tablespoon |
| Mayonnaise | 1 teaspoon |
| Oil or cooking fat | 1 teaspoon |
| Nuts | 6 small |
| Olives | 5 small |
| Avocado (4-in. diameter) | ⅛ |

## CALCULATION OF THE DIABETIC DIET[2]

Nutritive adequacy of the diet will be assured by including the same "basic protective foods" that are recommended for the normal individual. These include:

| | |
|---|---|
| Milk | 1 pint for adults<br>1 quart for children |
| Meat, fish, poultry, eggs, and cheese | 4-5 ounces |
| Whole grain or enriched cereal or bread | to meet caloric needs |
| Fruit—one a citrus fruit or tomato | 2 servings |
| Vegetables—one green or yellow | 2 servings |
| Butter or fortified margarine | to meet caloric needs |

The actual calculation of the diet can be reduced to a simple formula, as shown in table 8. To determine the number of servings of bread, meat, and fat exchanges required to complete the diet prescription, it is necessary only to:

(a) Subtract the number of grams of carbohydrate (61 in the example in the table) furnished by the other sources of carbohydrate from the amount prescribed (180) and divide the result by 15, the number of grams of carbohydrate in one serving of bread exchange as noted in List 4.

TABLE 8
Procedure for Calculating a Diabetic Diet

Sample Prescription

| | |
|---|---|
| Carbohydrate | 180 gm. |
| Protein | 80 gm. |
| Fat | 70 gm. |
| Calories | 1700 |

| | Amount | Carbohydrate gm. | Protein gm. | Fat gm. |
|---|---|---|---|---|
| Milk, whole (List 1) | 1 pt. | 24 | 16 | 20 |
| Vegetables (List 2, Group A) | as desired | — | — | — |
| Vegetables (List 2, Group B) | 1 serving | 7 | 2 | — |
| Fruit (List 3) | 3 servings | 30 | — | — |
| Total carbohydrate from sources other than bread exchanges | | 61 | | |
| 180 gm. carbohydrate in prescription<br>-61 gm. from sources other than bread exchanges<br>119 ÷ 15 = 8 bread exchanges | | | | |
| Bread exchanges (List 4) | 8 servings | 120 | 16 | |
| Total protein from sources other than meat exchanges | | | 34 | |
| 80 gm. protein in prescription<br>-34 gm. from sources other than meat exchanges<br>46 gm. ÷ 7 = 7 meat exchanges | | | | |
| Meat exchanges (List 5) | 7 servings | | 49 | 35 |
| Total fat from sources other than fat exchanges | | | | 55 |
| 70 gm. fat in prescription<br>-55 gm. from sources other than fat exchanges<br>15 gm. ÷ 5 = 3 fat exchanges | | | | |
| Fat exchanges (List 6) | 3 servings | | | 15 |
| | | 181 | 83 | 70 |

(b) The amount of protein in the diet may be adjusted to the prescription by subtracting the number of grams of protein (34 in the example) supplied by milk, vegetables, and bread exchanges from the amount prescribed (80) and dividing the remainder by 7, the amount of protein in each meat exchange.

(c) Follow the same procedure with regard to fat, except to divide the result by 5, the number of grams of fat in one serving as noted in List 6.

The diet is figured to coincide as closely as possible with the prescription. However, it is not practical to split bread or meat exchanges into halves or to add extra fruits and vegetables if the patient doesn't care for larger amounts. Therefore, the carbohydrate may vary as much as 7 grams from the amount ordered and the protein may differ by 3 grams. The fat will agree closely with the prescription, since the figures for fat are all in multiples of five.

## SAMPLE DIETS

In addition to the "Exchange Lists," nine sample diets have been worked out on different caloric levels ranging from 1200 to 3500. Three of these are especially for children. These are given in a pamphlet called "Diabetic Diet Card for Physicians"[4] which also includes the "Exchange Lists" and the guide for selecting the dietary prescription.

## NEW SUPPLEMENTARY MATERIALS

Two additional diet leaflets have recently been made available. They are modifications of the "Exchange Lists" for sodium-restricted and bland, low-fiber diets. [5, 6]

## EXCHANGE LISTS WIDELY USED

In 1953, a report was published regarding the acceptance of this material.[7] According to this report, over a two year period, from January 1951 through December 1952, the following figures are given:

Hospitals and physicians in 47 states, the Territories of Hawaii and Puerto Rico, and the District of Columbia are using these diets;

At least 900 hospitals in the country have adopted this method of diabetic meal planning;

Approximately 110 physicians have obtained the "meal planning" booklet in quantity for use with patients; and

Seven camps for diabetic children, out of a total of approximately nineteen in the country, are using this method of meal planning.

The booklet "Meal Planning with Exchange Lists" will be invaluable to the diabetic in planning his meals when he leaves the hospital and the diabetic meal plans will save many hours of professional time for the physician.[8]

## SUMMARY

The food exchange system of calculating diets is the simplest yet devised for patient, dietitian, and physician. The common foods allowed the diabetic are divided into six groups. Within each group are listed the kinds and amounts of foods with approximately the same nutritional value of carbohydrate, protein and fat. Thus, any item in a given group or list may be exchanged, in the amount indicated, with any other item in that list; but not with items in other lists. Each item, in its appropriate quantity, is known as a food exchange.[9]

This material is being used extensively throughout the country by physicians and hospitals, as well as being incorporated into medical, dietary, and nursing textbooks. It has been estimated that nearly 100,000 copies of "Meal Planning with Exchange Lists" are distributed annually.

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1. Caso, E. K.: Supplements to diabetic diet material, J. Am. Dietet. A. 32:929, 1956.
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# PULMONARY TUBERCULOSIS: A REVIEW OF CLASSIFICATION CHANGES

E. W. Hainlen, M.D.*

The only justification for a discussion of the subject is the expressed mystification of the family physician when he receives his patient back from the tuberculosis hospital with a discharge summary announcing the dynamic status to be "Active Improved", when the least he had hoped for was "Arrested", a term which had become familiar through long usage and which inspired confidence in the future of the patient. The latter term does not appear in the 1955 edition of the "Diagnostic Standards and Classification of Tuberculosis",[1] which was the 10th and latest revision by the Medical Section Committee of the National Tuberculosis Association.

To paraphrase the introduction to the 1950 edition,[2] "a clinical classification of tuberculosis, through ephemeral, is useful. On it depends such matters as legal requirements for isolation, medico-legal considerations with respect to compensation for disability, standards for the return of patients to work". Industrial personnel managers, health officers, insurance adjusters are classification-minded, and with the late developments in the Department of Health, Education and Welfare, and the various aspects of Social Security, the medical reports called for require niceties of judgment in submitting fair prognoses.

The aim of the Diagnostic Standards Committee has always been the distinction between active and inactive tuberculosis, and the last revision deals with only those two groups.

To comprehend the evolution of the classification process, we must go back beyond 1950, when the dynamic status of a patient showing progressive improvement was expressed by the steps: Active (Unimproved or Improved); Quiescent; Apparently Arrested; Arrested; Apparently cured.

By 1950 it was felt that our bacteriological methods had so improved that we regarded no case as sputum negative unless there were three *adequate* specimens of sputum or fasting gastric contents, taken at least a *week* apart, found negative by culture or animal inoculation. The 1950 revision thereupon deleted "Quiescent", "Apparently Arrested" and "Apparently Cured", and an example of the transposed groups became more or less like this:

| | | |
|---|---|---|
| Active | became | Active |
| Quiescent | " | Active Improved |
| Apparently Arrested | " | Arrested (3 mo.) III* |
| Arrested | " | Arrested (6 mo.) IV* |
| Apparently cured | " | Inactive (3 yr.) V* |

* Roman Numerals refer to exercise status: I—Bed rest, II—Semi-ambulatory, III—Ambulatory, IV—Full activity.

The Roman numerals coded the "exercise limits" and with the increased use of chemotherapy these limits have been further liberalized. Under this 1950 revision an "arrested" case could have consistent positive cultures and even an occasional positive concentrate, as long as he was asymptomatic and had a stable or slowly improving x-ray, with no cavity.

The 1955 revision, which is the principal area of discussion here, followed on the heels of increased use of body section radiography when we were often chagrined to have the planogram show open cavities in the same cases where postero-anterior routine films indicated healed lesions. With that came a more rigid tightening of the bacteriological standards, and the definition of a negative sputum called for three adequate specimens taken a *month* apart (instead of a week) to be negative by culture or animal inoculation.

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* Director, Medical Services, E. P. Bissell Hospital.

The "Inactive" case, then, must now be: (1) asymptomatic; (2) the roentgenogram must be stable or showing *extremely* slow shrinkage, and with no cavity; (3) the bacteriology must be negative by culture or animal inoculation of sputum, fasting gastric contents, or (to the perfectionist) aspirated bronchial secretions. The recommendation is that "all these conditions shall have existed at least *six* months—and that this designated period does not include and is in addition to the *six* months required for the determination of inactivity".

It is quite obvious that except in cases where resectional surgery is done after three to six months of rest and antimicrobial therapy, it will be quite difficult to hold patients within sanatorium or hospital walls long enough to achieve the standard of "Inactive" status as stated above.

Anything less than the above, in an improving patient, is necessarily classified as "Active Improved" when he has shown a microscopically negative sputum for three months along with the other two requirements of stabilizing x-rays and no clinical symptoms. The status is further indicated by parenthetically adding the number of months the stabilizing period has existed, as "Active Improved (5 mo.) III." The Roman numeral "II" indicates his physical activities have reached a total period of four hours out of bed daily; "III" puts him in the Ambulatory group with shop work and other activities; and "IV" means ordinary living conditions.*

When he has achieved an "Active Improved (6 mo.)IV" status, it must be assumed that he is comparable to the "Arrested" case of former days, and a good many cases are eligible to return to ordinary life and work, particularly those who continue to receive antimicrobial therapy under domiciliary supervision and cooperate in periodical x-ray and bacteriological examination.

REFERENCES

1. Diagnostic Standards and Classification of Tuberculosis: New York, 1955. National Tuberculosis Association.

2. Idem.: 1950.

* See footnote on page 222.

# REPORT ON 100 CONSECUTIVE TUBERCULOSIS CASES TREATED FOR THE FIRST SIX MONTHS OR MORE IN HOSPITAL

Nathaniel Young, M.D.*

Since July 1, 1952 it has been the policy at the E. P. Bissell Hospital to treat all patients with triple drug therapy in the usual doses (streptomycin Gm. 1.0 twice weekly; sodium paraaminosalicylate (PAS) Gm. 12.0 daily; isoniazid (INH) 3 to 5 mg./kilo. of body weight daily). The patients in this report comprise a highly selective group in that they all received triple drug therapy for at least six months, and were hospitalized for the same period. They also were a special group in that, as far as we know, they were virgin cases, i.e. they had not previously received antimicrobial therapy for tuberculosis. Some of these patients have had, in addition to drug therapy, either thoracoplasty or excisional surgery, and after discharge from this hospital were receiving various combinations of drugs (Streptomycin, PAS; PAS, INH; Streptomycin INH; or Streptomycin, PAS, INH.), or received no further drug therapy.

Of the 100 cases in this study, 96 had positive sputum examination for the tubercle bacillus at the beginning and no reports are available on four. There were no negative sputum examinations. The status of sputum examination is shown in Table I for a 6, 12, and 24 month period. The dynamic status of the cases at the end of 24 months is shown in Table II.

As can be seen from the tabulated results, 5% or less of patients were proven positive at any time during the 24 months of study. The two patients who reverted to positive between 12 and 24 months had discontinued long term therapy of their own volition and had x-ray reactivation as well as positive sputum. They promptly responded to reinstitution of therapy.

73% of the total had stable x-rays, no cavitation on planography and negative sputum at 24 months, and this represents 85% of the patients still alive and regularly attending the Chest Clinic.

7% of the total had stable x-rays but had not submitted sputum in recent months and were classified as active improved, although some denied any expectoration and probably had negative sputum.

6% had died, the usual cause being hypertension in the lesser circulation secondary to fibrosis and emphysema. These added to the 73% negative made 79% non infectious or 88% of those actually followed to completion of 24 months.

9% were lost to regular clinic follow up and the drop in the number of proven negatives parallels the number lost to follow up or not submitting sputum for examination. Some of the patients lost to follow up may be under the care of private physicians and some may be well, requiring no medical attention.

Robins and colleagues[2] have stated, "The most valued measure of the success of such a program from the public health point of view is the proportion of the entire group of unhospitalized patients whose disease can be considered stable and non-infectious two years after the start of treatment. In arriving at such a figure one must include in the total all patients who lapsed from clinic attendance while their disease was still active and those hospitalized for tuberculosis after an adequate period of antimicrobial therapy in the clinic. On this basis 36.7% of the patients given drugs for at least four months could be classified as having attained arrest of their disease at the end of two years of observation. By applying similar criteria, 49.0% could be considered to have converted their sputum to a non-infectious state during this period.

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* Assistant Director, Medical Services, E. P. Bissell Hospital.

### TABLE I
### SPUTUM

| SMEAR AT 6 MONTHS | | | CULTURE AT 6 MONTHS | | |
|---|---|---|---|---|---|
| Pos. | Neg. | No report | Pos. | Neg. | No report |
| 3 | 97 | 0 | 2 | 98 | 0 |
| SMEAR AT 12 MONTHS | | | CULTURE AT 12 MONTHS | | |
| Pos. | Neg. | No report | Pos. | Neg. | No report |
| 3 | 88 | 9 | 3 | 88 | 9 |
| SMEAR AT 24 MONTHS | | | CULTURE AT 24 MONTHS | | |
| Pos. | Neg. | No report | Pos. | Neg. | No report |
| 5* | 73 | 22** | 5 | 73 | 22** |

* 2 promptly became negative on re-commencing therapy and are negative at 36 months on smear and culture.

** 6 died and are therefore non-infectious.

### TABLE II
### DYNAMIC STATUS AT 24 MONTHS

| Inactive | Active Improved | Active | Died | No Report |
|---|---|---|---|---|
| 73 | *7 | 5 | 6 | 9 |

* Active Improved — in most cases refers to cavity still present on planograms but x-ray stable and sputum negative; or may refer to stable x-ray but sputum occasionally positive on smear or culture. The criteria for dynamic status are taken from the 1955 edition of Diagnostic Standards of the National Tuberculosis Association.[1]

"Certain unfavorable features have been also noted in connection with the drug treatment of non-hospitalized patients with tuberculosis. Progression of the disease occurred in 12% of all patients. Moreover, tubercle bacilli were still present in the sputum of 100 of the 256 originally infectious patients after twenty-four months of antimicrobial therapy. Sixteen patients died of tuberculosis during the period of observation".

Summary: A comparison is made with a highly selective group of hospitalized patients receiving triple drug therapy and a group of non-hospitalized patients receiving INH and PAS. The highly selective group were all virgin treatment cases and all had a minimum of six months of hospitalization. Some had drug therapy during the whole of the two year period and some had surgical therapy. After discharge from the sanatorium only two drugs were used as a rule. Of this group only 5% were known to be infectious at the end of two years and on 22% there was no report, but only 9% were lost to follow up, making 79% of the original series non-infectious or 88% of those actually followed to the end of 24 months.

In the non-hospitalized series 49% could be considered to have converted their sputum.

Whereas 73% of our cases were classified as Inactive, and 7% as Active Improved, making 80% fulfill the criteria of Arrested, only 36.7% of the other series were classified as Arrested.

Conclusion: The results of treatment with reference both to dynamic status and infectiousness in 100 virgin cases, hospitalized for at least six months are very good, and are much superior to those in an unselected group of non-hospitalized patients treated with drugs for a minimum of four months.

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2. Robins, A. B., Abeles, H., Chaves, A. B., Aronsohn, M. H., Breuer, J. and Widelock, D.: Drug treatment of non-hospitalized patients with tuberculosis, Am. Rev. Tuberc. 75:41, 1957.

# MUTUAL COOPERATION FOR THE DEVELOPMENT OF A POISON INFORMATION SERVICE

ELMER F. FANTAZIER, M.D.* AND MARK KENYON, PH.D.**

Public Health practices and preventive medicine, the application of new medical skills, immunizing agents, and drugs, have changed the leading causes of death and disability. Nowhere are these changes more striking than in the younger age groups of the population. However, there is one discordant fact in this optimistic resume of the achievements of preventive medicine. One cause of preventable and wholly unnecessary cause of death and disability which has not kept pace with its mates of yesteryear is accidents. This singular category is increasing rather than decreasing.

It is a startling fact to realize that accidents of varying types cause over 100,000 deaths and 10 million injuries in this country every year. The seriousness of this new public health challenge has brought it to the attention of official, voluntary, and private public health and medical agencies throughout the country. Health departments have become particularly aware of their new responsibilities and are actively concerned with the public health aspects and affects of deaths and disabilities from accidents. It is now generally recognized that accidents constitute a major problem in public health. The loss of life and incapacity resulting from accidents is as great as, or greater than, that from any disease entity.

Recently, a new category of accidental death and injury is receiving increasing emphasis. This new area is poisoning due to the accidental ingestion of some common household product. We refer to the ready-made and often highly toxic materials made by modern industry and used in millions of households to clean clothes, kill flies and rats, provide heat, and accomplish many other everyday tasks.

The greatest potential accidental poisoning hazard lies in the fact that thousands of products containing new chemicals, and old stand-bys in new combinations, are being marketed for home use. Store shelves in family shopping centers offer an ever-increasing variety of cosmetics, medicines, detergents, cleaning, polishing, deodorizing agents, paints and solvents, fertilizers, pesticides, weed-killer, and innumerable other products designed to make life simpler. Not a week goes by without the addition of some new brand to the list of things people are urged to try, either on themselves, their children, home garden or hobby. Valuable and harmless as all these products are when properly used, everyone of them, from aspirin to the latest detergent, is a potential poison if misused.

The National Safety Council reports that every day last year, an average of four persons accidently swallowed enough of some poisonous substance at home to cause death. The particularly tragic fact is borne out that more than one-third of the total number of deaths from accidental poisoning occur among children under five. As those familiar with child growth and development know, this is the runabout, exploring, hand-to mouth stage when activity is intense, curiosity is insatiable, and experience and education practically non-existent.

Old drugs and old prescriptions left around the house where children can get into them and sweetened, flavored pediatric aspirin are the biggest killers. Well mean-

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**Director—Program for Prevention of Crippling, Delaware State Board of Health.

ing parents often encourage children to take the "candy aspirin" and all too often the attractiveness of this medication results in the child taking an overdose when left unsupervised.

Although the number of different substances ingested by children are many, the majority of fatal childhood poisonings can be attributed to a few common drugs and chemicals. The following list is the experience in the two years 1949 and 1950 in this country.[1]

Substances Responsible for Deaths from Accidental Poisoning of Children Under 5 Years, United States, 1949 and 1950

| | Number | Percent |
|---|---|---|
| Drugs | 113 | 33. |
| Aspirin and Salicylates | 113 | |
| Barbiturates | 31 | |
| Miscellaneous Drugs | 132 | |
| Petroleum Products | | 25. |
| Especially kerosene | 210 | |
| Material for External Use | | 36. |
| Lead | 66 | |
| Corrosive substances | 60 | |
| Arsenic | 42 | |
| Miscellaneous | 132 | |
| Noxious Foodstuffs | 8 | 1. |
| Unclassified | 40 | 5. |
| | 834 | 100. |

The miscellaneous fatal group and many of the nonfatal poisonings are the result of ingestion of a vast multitude of different agents, many of which are new synthetic chemicals.

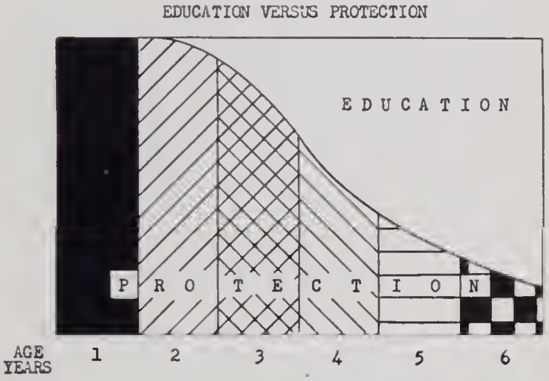
In 1951, 80% of the aspirin deaths occurred in children under five years of age. In New Bedford, Massachusetts, during 1955, approximately 100 youngsters received emergency treatment at St. Luke's Hospital or in doctors' offices for accidental poisoning.[2] Aspirin — both the adult and flavored "baby" type — was the *number one* offender. Other commonly ingested medicines included prescription drugs of all types, vitamins, cough medicines, reducing tablets, laxatives, rubbing alcohol, and oil of wintergreen. During 1954, of 74 cases of accidental poisoning reported in Greater New Bedford:[2]

*Medicines* were responsible for 61% of the cases.

*Household products* were responsible for 34% of the cases.

*Rodent and insect poisons* were responsible for 5%.

The accompanying pie chart and graph (Figure 1) illustrate further the child acci-



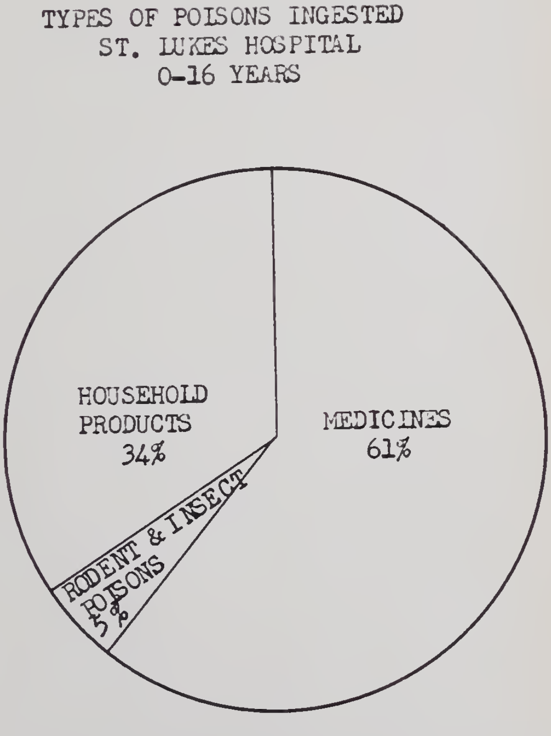


Figure 1

Chart and graph prepared from data contained in reference 2.

dental poisoning experience of the St. Luke's Hospital in New Bedford. The graph seeks to contrast the amount of education versus protection required by children from birth to six years of age. It is important to note — that during the first year of life — a child requires absolute protection. As the age of the child advances, education can supplant some of the needed protection.

In the United States in 1952 there were still 1440 deaths as a result of accidental ingestion of poisons.[3] One-third of these were in the first five years of life.

Mortality figures scarcely begin to show the significance of the poison problem. Kerlan estimates the number of non-fatal poisonings to be 100 or 150 times the number of fatalities. There were approximately 150,000 cases of accidental poisoning that survived in the United States last year, 50,000 of which were children under five.[4]

The nature and toxicity of the multitude of new and old products are frequently difficult, and almost impossible, to determine because of their non-revealing benign trade names or numbers and the reluctance of manufacturers to release so-called "trade-secrets". The physician who is called upon to treat a known or suspected case of poisoning cannot be expected to keep abreast of developments in the field of synthetic chemistry and toxicology. Time is often the commodity which is most critically lacking in treating a poisoned person.

The Delaware State Board of Health has been aware of the ever increasing number of accidental poisonings for some time, particularly the accidental poisoning of children. One of the basic objectives of the Program for the Prevention of Crippling has been to develop a poison information center in Delaware. The problem of accidental poisoning as it affects Delaware's people has also concerned many of Delaware's physicians. A natural outgrowth of this mutual concern and awareness of responsibility resulted in the development of a Committee on Poison Control at the Delaware Hospital. This committee represents members of the New Castle County Medical Society, the Association of Delaware Hospitals, Delaware Pharmaceutical Society, and the Delaware State Board of Health.

The committee soon realized what a monumental task it had undertaken. Thousands of products are being screened, their ingredients listed and their antidotes agreed upon. The Committee was aided greatly in this respect by the Florida Pediatric Association. A simple working poison reference file containing 800 product listings and antidotes was obtained from this group. This basic reference file has been increased and supplemented with recommended texts on poisonings. This reference library, procured by the State Board of Health, literally adds thousands of additional listings to the Center.

The new center began to function on a limited basis in March of 1957 and is entitled *The Delaware Poison Information Service*. This new service, located in the Delaware Hospital in Wilmington, has been organized to serve as a comprehensive poison information center to aid the physician. A new direct telephone has been installed adjacent to the Hospital Pharmacy. *The number is (Wilmington) OLympia 5-3389 Ask for the Poison Center.*

During the time the pharmacy is open (9 a.m. to 5 p.m. week-days and 9 a.m. to 4 p.m. holidays and weekends) the pharmacist will answer all incoming calls to the Poison Information Service. Physicians will be given the complete pharmacological information and medical information available. Lay persons will be given the commonly accepted first aid information such as is available in first aid manuals. Lay persons will be asked to go to the nearest hospital or their doctor's office. The Poison Control resident will follow up with a call to the doctor or hospital of choice. The call will be recorded in a special log book prepared for this purpose.

Incoming calls at times other than the time the pharmacy is open will be taken by the Emergency Ward clerk. If a physician calls, his name and number will be taken. The resident taking calls for the Poison Information Service will be put on special page. If he does not answer within

10 minutes, the intern will be asked to call the physician and give the information from the card file.

Thus information is available to all physicians and laymen as an emergency service on a 24-hour basis. The center is set up on a cardex system consisting of two basic files. One file consists of "Product Listings". The second file contains recommended treatment procedures. The information consists of white and yellow cards in separate drawers. Each white card contains the name of a poison or poison-containing product and the ingredients contained therein. The white card refers to one of the yellow cards on which are listed the toxic or poisonous chemicals, common sources, degree of toxicity, signs and symptoms of poisoning, the treatment, and also further references if necessary. In this way, information may be given quickly to anyone calling for it. All recommended and necessary drugs and equipment needed for treatment of a poison case are stocked and available in the emergency room.

General Objectives of Poison Information Service.

1. Stock antidotes, equipment and literature at center.
2. Set up reference library of books, trade journals, and other periodicals at center. (A list of available references will be made to all interested parties or persons.)
3. Keep references on recent papers and articles on poisonings.
4. Speakers bureau to give talks or participate in educational programs for the public through organized groups.
5. Compile and distribute literature, charts and general information on poisoning to clinic patients and to the general public.
6. Cooperate with other agencies.
7. Educate staff by bringing information into staff meetings concerning progress of center, accidental poisoning, treatment and antidotes.

A handbook entitled, "Procedure Book for the Management of Accidental Poisoning" has been developed as a first-aid resource for the physician and the hospital emergency ward.

This procedure book has been developed for the purpose of providing Delaware physicians with a ready source of information as to the procedures to be followed in managing cases of poisoning. It is specifically geared to getting the right thing done as early as possible and putting the doctor in touch with more adequate information when the active ingredients in the poison cannot be discovered locally. The procedure book will be distributed to all Delaware Physicians in the near future. This procedure book does not claim to be an innovation in the now encyclopedic field of poisoning due to household substances. It was developed as a guide to action rather than as a source book.

The Delaware Poison Information Service has been patterned after its Chicago predecessor, developed under the leadership of Dr. Edward J. Press. It is one of many centers now being operated in the United States. These reflect the concern of Pediatricians for the needless toll of children whose explorations in and about the home expose them to a growing list of poisonous preparations whose nature it is getting harder and harder to ascertain. The Committee on Accident Prevention of the American Academy of Pediatrics has taken the lead in developing this activity which now begins to assume the proportions of a national movement involving a number of health and accident prevention agencies.

The important and critical need for a national clearing house on poison information has been recognized by the U. S. Department of Health, Education and Welfare.

At the request of the American Public Health Association, the Public Health Service is establishing a National Poison Information Center. Information from state and local Centers will be collected by this Center and there tabulated for later distribution to existing Centers and New Centers.

The first job in any program to reduce morbidity and mortality from accidental poisoning in children is educational. Dr. Katharine Bain has estimated that if salicylates, barbiturates and kerosene were made unavailable to children, two-thirds of the present mortality could be eliminated.

Better labeling can help the doctor and alert the parent, but it will never stop the young explorer from inquiring into the nature of this wonderful new world. It therefore behooves the practitioner to give early and repeated counsel on this subject to parents, parent groups and to support publicity about the prevention of poisoning. A useful starting point for educating parents concerning the dangers lurking in their homes is to advise a room-to-room inventory with careful safeguards of all possible poisons. As a reminder of particular places and poisons, a checklist similar to the one listed below is helpful.

KITCHEN—about kitchen sink, soaps, detergents, lye (Draino).

ELSEWHERE—silver polishes, furniture polishes, waxes, shoe cleaners and polishes, bleaches, dry cleaning solutions, window cleaners. If kerosene stoves are used, eliminate drip cans.

BATHROOM—The medicine cabinet should be out of reach and preferably locked. A minimum of drugs should be kept in the house. Particular care should be taken with barbiturates, aspirin, digitalis, eye drops, antispasmotics, reducing pills and opiates.

CELLAR-WORKSHOP—paints, especially lead-containing, turpentine, kerosene, paint removers, paint brush cleaners, and methyl alcohol.

GARAGE—insecticides, fertilizer, gasoline, kerosene, antifreezes, and fire extinguishers.

GARDEN—poison ivy, wild mushrooms and weed-killers.

The important point has been made that "harmless" medicines and household products can easily become deadly poisons when carelessly left within the reach of young children. The following poison case histories may serve to further emphasize this contention. These cases and many others have already been treated by poison centers.

| TOXIC AGENTS | AGE | SEX |
|---|---|---|
| BENZINE | 3 yrs. | Female |

Mother poured benzine into a Pepsi Cola bottle. She intended to use the benzine for removing paint from her coat. She left the bottle with the benzine on a table in the kitchen while she took an older sibling to school. In the meantime, the youngest child obtained the bottle and ingested about six ounces of its contents. The child had burning in the mouth and throat, nausea, marked vomiting, diarrhea and dyspnea. She was taken to the hospital where she remained for several days and was treated with stomach lavage and supportive therapy. This case illustrates the relative inconsistency of benzine ingestion. This child made a complete recovery with the ingestion of a very large amount of benzine, whereas ingestions of smaller amounts have resulted in fatalities.

RENUZIT 1½ years Male

While playing in the kitchen with an older sister the child obtained the bottle of Renuzit which was stored on the kitchen floor under the sink and ingested five ounces of its contents. The child was found in a coma and taken immediately to the hospital emergency room where his stomach was lavaged and he was sent home after he regained consciousness. (Renuzit is a light petroleum hydrocarbon).

RESERPINE 2-3 yrs. Males

While mother was busy feeding baby, two children (2-3 yrs. of age) opened mother's purse and obtained a pillbox containing reserpine. Between them they ingested 25 tablets. Children became stuporous and were taken to the hospital where they were treated with induced vomiting and stomach lavage. Both made a complete recovery after a one day stay.

## ANOREXIC DRUG POISONINGS AN INCIDENT OF "PRELUDIN" INGESTION (Phenmetrazine Hydrochloride)

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A new anorexic drug, structurally different from the amphetamines is "Preludin" which recently received wide promotion. The first poisoning, reported from this compound had alarming symptoms very similar to amphetamine intoxication.

2½ yrs. Female

A child, one of four siblings, climbed on a chair and obtained the medication from a shelf in a cabinet. Mother believes child put about 15 pills in a glass of water then drank contents. Within a short time, mother noticed child was very excited, talkative and with involuntary movement of the hands. The child was given a emetic as a first aid measure and then taken to the family physician about two hours after ingestion. At that time, there was incessant talking and marked tremors. Since no improvement was noted, the physician referred the child for hospitalization. On admission to the hospital, four hours following the ingestion, the same symptoms of excitement, tremors and incessant talking were noted. The child was sedated with sodium phenobarbital gr. ½ intramuscularly every four hours for 36 hours before the exciting effect was completely eliminated. The child was finally discharged in good condition.

Physicians dispensing or prescribing anorexic or reducing drugs of any kind are urged to warn adults about the potential hazards to children and the necessity of keeping such drugs securely out of their reach. Physicians are also requested to label properly and legibly any medication which they dispense, and to use appropriate containers for such distribution.

SELSUN—(Selenium Sulphide)

15 mos. Female

Father who is a pediatrician received a sample of Selsun in the mail. The bottle containing Selsun was left on the edge of the tub in the bathroom. The father had used it as a dandruff remover. The child went into the bathroom, obtained the Selsun and ingested some of its contents. Since the child was asymptomatic and since the father was a pediatrician, he gave the patient milk as a first aid measure and child apparently made a full recovery. Although the Selsun bottle has a poison label, it appears that the ingestion of Selsun does not present a major emergency primarily because of the insolubility of Selenium Sulphide and the presence of the soap which is a "built-in" emetic.

No poison information center, however complete, and no program of public education, however thorough, can completely control and prevent these needless poisonings. The beginning and the end of any poison control program must be founded within the individual home. Parents have the first and major responsibility to see that potentially harmful materials cannot find their way into the curious hands and ever receptive mouths of young children. All the products named and enumerated in this article should be kept in a place inaccessible to children. This does not mean that the high shelf will do. A normal child will only find the high shelf an additional incentive for climbing. Therefore, we only succeed in superimposing the danger of falls upon the existing danger of poisoning.

From April 1 to June 15, 1957, the Delaware Poison Information Service served 26 requests for specific information regarding poison cases.

Accident prevention is a community problem. The Delaware Poison Information Service therefore does not aim to supplant the local solution for the local problem. The parent in the home, the local practitioner and the community hospital are the prime agents for meeting the challenge of accidental poisoning in childhood.

## SUMMARY

1. Preventive medicine and public health has succeeded in controlling and preventing most of the communicable and infectious diseases of the past.
2. The new areas of concern to medicine and public health today are the degenerative diseases and the problems of accident control.

3. Mutual concern regarding the problem of accidental poisoning in children and adults has led to the development of the Delaware Poison Information Service.
4. This new service has been designed primarily as a free emergency information service for physicians.
5. The emergency Delaware Poison Information Service number is (Wilmington) OL 5-3389.

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# THE MENTAL RETARDATION PROGRAM OF THE STATE BOARD OF HEALTH

Fred A. Stonesifer, Ph.D.*

The problems and needs of mentally retarded individuals are of long standing. Individuals who function at an inferior level of intellectual efficiency have been known from time immemorial. Lately, however, there has been increasing interest in this problem — not only at the state level, but locally, as well as nationally. Emphasis of the immediate concern for retarded children stems from recent efforts of parents who have organized in order to obtain more adequate services for their children. The State Board of Health is aware of the needs of retarded children, and has directed that the program to be described below should be brought into being. It is not clear immediately how such a program should be implemented. Retarded children who are in the public schools receive a number of services through the State Board of Education. Also, adults and children, as well, are referred to the State Mental Hygiene Clinic for service. In this respect services were already available to portions of the Delaware population who are retarded.

There was one area which seemed to be the particular responsibility of no certain agency or office. This was the area of the pre-school child. After some inquiry and investigation, it appeared that it would be appropriate for the Division of Maternal and Child Health to direct its efforts for the mentally retarded towards the needs and problems of children in this group. It was felt that the already-functioning Well Child Conferences would be a good source of referral of children suspected of being mentally retarded. Pediatricians and nurses, with their close contact with a number of families were in a strategic position to help with the early location of retarded children.

The program considered would be one of early identification of the retarded child, his diagnosis, the evaluation of his abilities and capacities, the development of a program for him, continued contacts with the family to help them understand and accept him, and counseling for the parents if it is indicated and desired. Not every family would want all of these services, but it is intended that they shall be available where and if they are needed.

The public health nurse is seen as the key figure in this program. She first is aware of the case—in the home or in the clinic—and as the child is followed she remains in close contact with him and the family. After the psychological examination and evaluation of the child, it is the nurse who carries out the recommendations that are made. Her continuing contact with the family makes her the ideal member of the team to bring together the findings of the various staff members, and work with the family towards carrying them out.

So that everyone might understand what it is that is being presented, a few definitions ought to be given. A recent conference convened by the Macy Foundation suggests a definition which seems to be useful in the present situation: "Mental Retardation is a symptom which may be permanent or temporary, and which manifests itself in a given environment by social inadequacy, due in whole or in part to intellectual limitation"[1]. This definition will not suit all workers in the field. The traditional concept of mental deficiency or feeblemindedness has been abandoned in favor of a more comprehensive concept. Mental retardation is a sub-normal deviation, either temporary or permanent, while mental deficiency or feeblemindedness, usually is thought of as a permanent, irreversible condition associated with an impaired and defective intellectual functioning. In many situations where mentally retarded individuals are being discussed and planned for, the term "mental defective" or "feebleminded" might better apply. However, it is not the present purpose to resolve the confusion surrounding terms in the field. It will be sufficient in this paper to use the term "mentally retarded" to encompass any individual whose intellectual functioning is impaired and inadequate in the social situation in which he finds himself.

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The moderately retarded are those who are potentially capable of developing competence in social and economic performance. This group is often referred to as "an educable group" for school purposes. A number of factors are involved in determining whether or not an individual belongs in this group. Included are cultural background, social development, speech deficiency, physical abnormalities, and emotional conflicts. The measure of general intellectual performance, usually reported in terms of intelligence quotient (IQ) is also part of the total clinical evaluation. While this measure of performance, reported in terms of IQ is usually considered to be between 50 and 75, deviations are often found, and frequently qualitative aspects in the general clinical outlook are more important than the quantitative ones.[2]

A second group of individuals often referred to as "severely retarded," are those who can achieve a limited degree of personal social adjustment and competence for economic usefulness. This group commonly has an IQ score below 50, perhaps as far down the scale as 30. However, again the numerical quotient is not the important aspect to be considered. The child's potentialities for social adjustment, speech development, ability to follow directions and to care for his own needs, are by far the more important criteria.[2] It is this group of the population about whom so much thought is being given regarding training as opposed to education. It is commonly thought that formal academic study is of minimum value to this group, and that they can benefit most by being given training in those simple and ordinary tasks which they are able to learn. This is best determined on a trial and error basis, although in time research ought to establish data which will lead to greater understanding of the capacities and potentials of this group of the population as well as methods and procedures for their training. Specific training for all kinds of workers in the field is also an area which ought to be investigated.

There remains a third group of retardates whose capacities and functioning is below the two groups already mentioned. This group, whose social incompetence and lack of understanding, necessitates long-time or permanent care in their own homes or in suitable institutions, is known as "custodial retardates" or "dependent retardates". They apparently have little capacity for training or occupational usefulness and social competence.[2] Included in this group would be the severe nursing problems and the serious medical problems that require considerable attention on the part of trained personnel.

In any public health program, prevention is usually considered to be a major aspect. However, the present program is considered to be a service one and will concern itself with prevention only in respect to psychological problems which might occur in the family—both with the child involved, or with others in the family, including the parents. Referring again to the Macy Conference[1], this seems to be an area in which service can be given so that serious problems do not develop. While any illness or disability may be reason for maladjustment to occur in the family, the feelings and attitudes associated therewith may result in much greater problems than the disability itself.

In a culture such as our own, intellectual efficiency is highly prized by many people. Where intellectual limitations exist in the family, it has been the cause of many serious difficulties. To help overcome such problems, the present program is interested in early identification of a retarded child, and interpretation to the family about his limitations, in order to help the family to accept the child without feeling guilty or ashamed, and in teaching them to take care of the child. An early recognition of limitations and a knowledge of capacities of the child, would tend to minimize the family's expecting too much from him and placing too great a burden on him. At the same time, the problem of nursery school, kindergarten, and beginning early school experiences might be met much more adequately if the responsible teachers and individuals were aware of the problem they have to deal with before failure or breakdown of the child occurs. Such unhappy experiences might be avoided if the child's limitations are known before he is asked to function beyond his ability in the home, the playground or the school.

The details of carrying out the preventive and service aspects of the program for mentally retarded, have been worked out — at least in preliminary form. The State Well Child Conferences have been used to begin this program. The pediatricians in a number of the conferences have been advised that psychological service is available to them. When a child is seen in their clinic who is suspected of being mentally retarded, he can be referred to the Clinical Psychologist in the Division of Maternal and Child Health for examination and evaluation. The public health nurse acts as the liaison between the Well Child Conference and the Clinical Psychologist, and provides information about the baby's health, physical examination, and home conditions. She also arranges an appointment for the family to take the child for examination. After the child is seen by the psychologist and the report prepared, the pediatrician in the Well Child Conference is furnished with a report for his guidance and as part of the child's record, and the nurse is expected to work with the family, carrying out the recommendations that have been made. If other personnel are involved, such as speech therapist, family physicians, or clinics, they too are advised of the results of the evaluation of the child. If any question arises, or if there is need for clarification or interpretation of parts of the report, recommendations or other pertinent aspects to be considered, a conference is arranged so that all interested persons may clarify their thinking in behalf of the best interests of the child and the family.

After the child has been seen an interview is held with the parent, usually the mother. An effort is made to describe her child in terms of his limitations, and also his potentials, so that she will know more clearly what she might expect of him. This seems to be an important part of this program, for it is the family — by their attitudes and feelings — who set the stage for acceptance of their child, not only in their home, but also in the community in which they live. It is not anticipated that any parent can be told their child is thus and so, and have them believe it and accept it at once. However, the possibility that an interview can be followed by subsequent interviews holds out the promise that eventual acceptance and understanding can be made a part of their thinking about their child.

When problems of the parents, together with the problems of the child, aggrevate the family situation — perhaps the parents feel guilty or ashamed, or don't know how to cope with their child, or are unable to handle their own personal problems, or maybe a combination of all of these — the presence of such unsatisfactory conditions in the home often create conflicts, dissatisfaction, and difficulty. Where this is so because of problems associated with a retarded child, the State Board of Health program offers counseling service. It is intended that one or both parents, if necessary, be referred to the Clinical Psychologist for counseling. The parent will be seen as often as is necessary so that he might be given information about his child and associated problems. As the parent acquires insight into his and the child's problems, it is anticipated that the difficulties created by the problem will diminish. The possibility of group counseling has been considered, and while it is not part of the program at present, prospects for the future have been favorably considered.

It might be mentioned again that the one staff member who is visiting in the home and is in close touch with the situation within that home is the public health nurse. It is through her and her efforts that this program succeeds. She has recommendations, reports, evaluations, and suggestions, some of which perhaps are not and cannot be followed through because of various home conditions and situations. However, it is anticipated that through conferences and home visits, the various staff members will be able to be informed to the extent recommendations are followed in the home.

The programs as described so far, has been based upon those Well Child Conferences supported by the State Board of Health. No one believes that the Division of Maternal and Child Health will be able to see all of the retarded children in the State of Delaware. However, it is hoped that a representative number will be seen and that the service of this program will not be restricted to the Well Child Conferences. With this thought in mind, pediatricians and other physicians are invited to make use of the services of the program for the retarded as established by the State Board of Health. Referrals can be made to the writer. The same general procedures will be followed as far as practicable as are set forth above. It would seem that the referring physician and the clinical psychologist would be in close touch with each other. Specifically, services to private practitioners seem likely in two areas: (1) diagnostic examinations and evaluations, and (2) counseling for parents.

The present program does not provide a complete program for the care and the needs of the retarded individual. According to a recent United States Office of Education's report[3] there are four million educable or marginly independent retarded individuals in this country. Of this group, 750,000 are children between the ages of 6 to 17. Of this group, 108,903 are in public school classes. Of the trainable retardates, or semi-independent individuals, there are reported to be 600,000 in the United States of whom 110,000 are between the ages of 6 and 17 years. 10,000 of this group are in a special class. When it is realized that 95% of the retarded individuals are in the community and that only 5% are in institutions, some awareness of the magnitude of the problem confronting us is evident. As Leo Kanner[4] has said, our society could not function without the services of mentally defective and mentally retarded individuals. Thus it appears that we must think not only in terms of education, but also of training of various kinds: training in social activities and social behaviors, in personal care and in daily living. Recreation is another important aspect. If the retarded person is to have a useful job to do, he has to be trained to do that job. Ofttimes guidance is necessary as to which particular job is suitable for him. Sometimes counseling is required, with personal problems or with problems of a more general nature. Sometimes parents might need educational courses and other pertinent information which would make the care of their child easier for them and better for the child. The sheltered workshop is not the only solution for the retarded individual. He may be capable of more than that, depending upon the extent of his mental and social competence. Community centers devoted especially to the problems of the retarded are performing a useful function in some areas and localities. Whatever services are ultimately provided for meeting the needs of this section of our population, one service seems a primary necessity. That service is a readily available clinic or center, staffed by competent people whose purpose it is to evaluate, assess, and utilize the capacities of the retarded individuals of our State. Such a facility devoted to the diagnosis, evaluation, training and employment of retarded persons, would meet a need not only of the retarded, but also help to make them, in part at least, independent and contributing citizens.

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# SELECTIVE SEROLOGIC TESTING IN DELAWARE

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New cases of venereal disease in Delaware, according to reports, declined progressively for several years after World War II and then began to increase again. As the resurgence became sustained, new approaches to the problem were sought. In the autumn of 1955, selective serologic testing was undertaken in the City of Wilmington and its vicinity. This project was supported by a grant from the United States Public Health Service and was conducted with cooperation from the Wilmington City Board of Health. A detailed account of experiences in this survey was presented in May 1956 before the International Symposium on Venereal Diseases and the Treponematoses, and has been published with the proceedings of that symposium. Of 3310 specimens obtained, analysis was completed on 3278, and is briefly summarized in Table I.

In the brief period of four and one-half weeks there were found 198 persons in need of treatment for syphilis and nearly 300 names were added to the register of previously unreported cases of syphilis. The bulk of these cases were discovered through street corner testing of volunteers in a relatively few pockets of the city although testing activities extended over the entire city. An appreciable number was obtained by door-to-door and tavern-to-tavern testing in suspected high prevalence areas.

Following this success in the city of Wilmington, the effort was extended to the remainder of the state in the spring of 1956. A brief summation of this experience is found in Table II. It was noted that a high incidence of infection could be found among those who pursue certain occupations. Tabulations for oyster shuckers and poultry packing plant employees is summarized in Table III. Figures for other occupations are less complete, but do focus attention upon a need for further studies along this line.

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### TABLE I

### 1955 WILMINGTON SURVEY

| | Number Donors | # Pos. (Reactive) | # Dbt. (W. React.) | Total Reactive | % React. | Brought To Rx. | Returned To Rx. | Previously Adequately Rx. |
|---|---|---|---|---|---|---|---|---|
| Males | 1944 | 174 | 87 | 261 | 13.4 | 50 | 74 | 101 |
| Females | 1334 | 96 | 60 | 156 | 11.7 | 27 | 47 | 62 |
| Total | 3278 | 270 | 147 | 417 | 12.7 | 77 | 121 | 163 |

### TABLE II

### 1956 SPRING SURVEY IN KENT AND SUSSEX COUNTIES

| | No. Donors | No. React. | No. Weakly Reactive | Total React. | % Reactive | Brought To Rx. | Returned To Rx. | Prev. Rx. Adequate |
|---|---|---|---|---|---|---|---|---|
| Males | 1157 | 134 | 90 | 224 | 19.4 | 45 | 74 | 68 |
| Females | 924 | 145 | 78 | 223 | 24.1 | 49 | 51 | 81 |
| Total | 2081 | 279 | 168 | 447 | 21.5 | 94 | 125 | 149 |

### TABLE III

### 1956 SPRING SURVEY OF TWO INDUSTRIES

| | Number | No. Reactive or W.R. | % Reactive | Brought To Rx. | Returned To Rx. | % Treated |
|---|---|---|---|---|---|---|
| Poultry Processors | 754 | 133 | 17.6 | 21 | 35 | 7.4 |
| Oyster Shuckers | 127 | 31 | 24.4 | 7 | 12 | 15.0 |

Phase one of this program terminated with the fiscal year on July 1, 1956 but strongly supported the opinion that there still remain a considerable number of persons in the state in need of treatment for syphilis. A second phase was undertaken with a further grant from the U.S.P.H.S., and this time was directed particularly at certain types of workers, although two large centers of population in New Castle County were screened in the original manner. Table IV summarizes these operations for the latter half of 1956.

In the spring of 1957, the program reverted to the City of Wilmington in the form of testing volunteer employees in small and medium sized industries. Of 2058 workers, only 117 or 5.7% had reactive tests; processing of these cases is not complete so that the yield of new cases of syphilis cannot be reported at this writing. The lower percentage of reactors is attributable to two handicaps of this approach; viz. (1) the expediency of extending the program to some plants which requested the service, although they might not have been selected as likely to produce many cases, and (2) the impossibility of limiting the program to selected workers in a particular plant. Reactivity among laborers in the leather industry was quite high but was diluted by the number of office workers who also volunteered. Where unskilled "blue-shirted" workers predominate, much higher yields are forthcoming than among "white-collar" and highly trained artisans. One plant which employed only skilled labor had no reactors among 67 employees.

Surveys within industrial plants have been suspended to allow a fuller program among seasonal employees. Already 41 reactors have been found among 348 agricultural migrants.

During the earlier months of this survey, new cases of syphilis continued to be reported in the state in such numbers as to place Delaware about fifth among the United States for new cases per unit of population. This rank was achieved via

### TABLE IV

### 1956 FALL SURVEY
### OF TWO TOWNS AND SELECTED OCCUPATIONS

| | Total Bloods | Reactors | % Reactive | Brought To Rx. | Returned To Rx. | Prev. Rx. Adequate |
|---|---|---|---|---|---|---|
| Door to Door—(Two Towns) | 161 | 51 | 31.7 | | | |
| Fishing Boat Crews | 244 | 58 | 23.8 | | | |
| Fish Processors | 218 | 34 | 15.6 | | | |
| Oyster Shuckers | 68 | 10 | 14.7 | | | |
| Poultry Processors | 105 | 17 | 16.2 | | | |
| Cannery Employees | 937 | 188 | 20.1 | | | |
| Lumber Workers | 7 | 1 | 14.3 | | | |
| Agricultural Migrants | 110 | 15 | 13.6 | | | |
| Resort Food Handlers (Cooks, Waiters, Butlers, Etc.) | 331 | 23 | 6.9 | | | |
| Total | 2181 | 397 | 18.2 | 91 | 122 | 102 |

cases detected by routine processing of hospital admissions, candidates for marriage or employment, prenatal examinations, etc.; addition of survey cases moved the State up to second place. Case reports for 1957 have slackened but it is too early to determine if the trend will be sustained.

From time to time, one becomes aware of a ripple of sentiment belittling the value of this intensive search for cases of syphilis, because most of the cases have had their disease for some time and are less likely to be infectious. This is a reflection upon the inadequacy of detection and treatment programs in years past, but does not make the effort any the less worthwhile for there still is possibility of preventing disabling or incapacitating illness and reducing the load of the various welfare agencies. Admittedly it is impossible to determine which of these patients would later develop serious consequences, and it is certain that some have had their syphilis arrested coincidentally by antibiotics administered for other reasons. Nonetheless, we must treat all who have no proof of adequate treatment in the past, for we continue to see the blind, the paralyzed and the insane victims of neglected syphilis, and babies continue to be born with the disease even though effective treatment is readily available.

The low incidence among people of the ages most active sexually may lead to a false sense of security for there is every evidence that there could be an epidemic spread if infectious syphilis were introduced into this group. The reported cases of gonorrhoea and the number of illegitimate births testify volubly to the extreme sexual promiscuity, and indeed at this writing, several cases of infectious syphilis among teenagers are under investigation and may very well bespeak an epidemic spread.

The question of biologic false positive reactions becomes of increasing importance as the incidence of syphilis is reduced, but as Fiumara and others have pointed out, there is still a high degree of specificity for reactive tests among those persons of the socio-economic status that comprise the clinic group, and which are the prime targets of our surveys.

This quest for cases must proceed and we must insure that every case receives adequate treatment. Surveys will continue in all parts of the state, applying every technique which bears promise. The Division of Venereal Disease Control urges every physician to join the crusade and encourage serologic tests for all patients so that our state will not continue to face the finger of scorn. With its wealth and resources, Delaware should be among the leaders in suppression of venereal disease, instead of dragging near the bottom.

### Summary and Conclusion

1. In the past two years, selective serologic testing has been extended to 9978 persons in Delaware, with 1419 of those showing serologic evidence of syphilis.
2. It has proven profitable to test all employees in certain industries, but surveying an entire plant often necessitates including many workers of socio-economic status where little syphilis is to be found.
3. The quest is of value even though most of the cases found have had their disease for many years.
4. So long as one case of infectious syphilis remains untreated, there is always the likelihood that an epidemic spread may develop.
5. All physicians are urged to join the crusade to remove Delaware from the leaders in venereal disease morbidity.

TABLE V

1957 SURVEY

| | Total bloods | Reactors | % Reactive |
|---|---|---|---|
| Wilmington Industries | 2058 | 117 | 5.7 |
| Agricultural Migrants | 348 | 41 | 11.8 |
| Total | 2406 | 158 | 6.6 |

# THE NOMENCLATURE AND SCOPE OF COMMUNICATIVE DISORDERS

WILLIAM G. HARDY, PH.D.*

The general field of communicative disorders and problems is broad, and during the years since World War II many changes have been wrought regarding these disabilities: in basic assumptions, in fundamental knowledge, in clinical tools, and in training and retraining needs. In consequence, new terms, re-definitions, and new attitudes have been generated, many of which are by no means stable, all of which need broad professional interchange so that one group of specialists may reasonably understand what another group is talking about. This is particularly necessary because of the developing comprehension of the responsibilities which should be assumed in medicine, in public health, and in education, in work with a child who has a communicative disorder. Medicine, in the broadest sense, must provide the diagnostic and descriptive information which the educator should have in order to place a child so that his best potentials may be realized, or to know what facilities in special education are needed. Because of this relationship, the matter of nomenclature becomes exceedingly important.

Communication with verbal symbols is one of man's most distinguishing characteristics, and when this transmission system does not develop normally, the entire dynamic structure of the child's personality may be seriously affected. Obviously, this may have serious implications in his learning and in his psycho-social development. For this reason, children with communicative disorders require additional or special help through all or part of the educative process. The data from a recent study of the needs of 1,100,000 atypical children in 14 states suggests that approximately 60 percent of these children have, among other things, communicative disorders. The scope of the field is tremendous.

There are many ways to describe the communicative processes and their disorders. A useful approach can be made in terms of the way communication develops normally in children:

1. Hearing: the presentation of sound to the mind is a major channel in language development;
2. Language: this is the mind's activity in learning, associating, and using symbols significantly;
3. Speech: this is the expressed form of verbal language; a child may communicate in directed babble, but speech must follow an orderly sequence of sound-utterance.

In the course of early development, the baby learns what may be called *communicative awareness*, a consciousness of bridging the gap between minds by visual and auditory exchanges. Then comes *comprehension of language*, the development of meanings through integration of auditory, visual, and situational stimuli; this is the foundation of reading. Third, comes facility in the *expression of language*, the development of speech through successive stages of babble, vocal play, jargon, words, and sentences; its counterpart, later on, is writing. The child with a serious communicative disorder is not especially endowed so he can develop differently; he must go through precisely the same stages as does the normal child. How well he can do this depends upon a variety of factors: (1) the cause, nature, and extent of the pathology or maldevelopment of the hearing, language, and speech mechanism; (2) physical, intellectual, and social status and maturity; and (3) the status of his communicative skills. These are the facts to be obtained in working out a health profile. When they are known, a program of training can be outlined according to the needs of the particular child, limited only by the facilities that are available.

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A simple diagnosis of deafness, in this regard, does not offer sufficient information. Deafness is not a disease, but it may be a symptom of a variety of diseases and disorders. What is necessary is that the child be studied in exhaustive detail, and given whatever medical treatment is indicated, so that he may be trained as a child, not as a damaged auditory mechanism. So, too, with language disorders, some of which are diffuse, some of which may be quite limited or specific. Usually, the development of language is a product of multiple stimuli and responses in which audition plays an important part. A language disorder exists when there has been maldevelopment of, or a breakdown of, the structures of the cerebrum where these myriad connections and associations are made. Sometimes, as in some forms of epileptoid diseases, medication can materially improve the function of these brain structures; more often, however, improvement of these language functions is a direct product of training or reorientation of undamaged structures. This is a dynamic process of integration. Speech disorders are best analyzed, perhaps, in physiologic terms; that is, what is happening in the sequence of events of utterance that interferes with ready communicative expression. With few exceptions, a severe hearing impairment or language disorder produces aberrant speech. For the most part, however, speech disorders may exist when both hearing and language functions are reasonably normal. Aside from the dysarthrias, which are caused by damage or disorder at the sensory-motor level of the brain, the great majority of cases of speech disorder represent a breakdown, or lack of development of, articulatory reflexes. There are many causes for this condition, ranging from problems of unbalance in the dynamics of personality to less than adequate reflexes in the control of, or in the mechanics of, utterance. It is important in speech correction that more than the obvious symptoms be treated; thus the need for careful diagnosis—again, of the whole child—and for an integrated program of training that incorporates the best in health and education. In order that adequate goals may be realized, it is important that the various disorders be understood categorically.

In common usage, the term *hearing* means adequate or expected response to sound, while the term *deafness* means lack of response to sound. Neither of these general apposites is useful for precise health and educative reference. Hearing encompasses the activity of the external and middle ear in conducting sound, the transduction of this energy into electrical values in the inner ear, the passage of electrical current across various synapses through the brainstem and the interbrain to the auditory cortex. The inner ear (cochlea) serves as the specific peripheral sense-organ; here sound is analyzed in terms of its harmonic components. The auditory cortex serves a complementary function; it is the perceptive mechanism of hearing where the harmonic complex of sound is synthesized. This is the VIIIth Nerve System; hearing impairment involves a breakdown, or disorder, or dysfunction of this system. Further cerebral functions involve the transmission of these auditory signals to the associative centers, and selection, recall, and motor synthesis in terms of meaning and experience. These functions lie beyond hearing, and involve the complex of listening, understanding, memory, and the like.

Hearing impairment may take several different forms, alone or in combination:

*Conductive*—involves trouble in the external or middle ear, whereby the passage of sound is impeded or damped; this may exist with any of the other types of hearing impairment; many kinds of conductive impairment are quite amenable to medical and surgical therapy, which is indicated as soon as the problem is defined;

*Peripheral Neural*—involves damage to or atrophy of the specific end-organ of hearing, the Organ of Corti of the inner ear. Pathology in the inner ear may result in impairment of both intensity and frequency, and commonly results in acoustic distortion. The inner ear contains the mechanism for encoding acoustic information, and damage at this level implies something less than a normal amount of acoustic information transmitted to the brain;

*Central Neural*—involves damage to or maldevelopment of the transmitting and perceptive structures of the VIIIth-Nerve System central to the cochlea. This may affect only loudness, only pitch, or both loudness and pitch. When the central mechanism, particularly the auditory cortex, is seriously involved, the individual can receive sound encoded in the end-organ, but cannot perceive it; the decoding facilities are affected, and he loses or does not develop his capacity to discriminate sounds and therefore cannot monitor himself. This is a quite common kind of "deafness" and does not necessarily involve other kinds of "brain damage", as this term is frequently employed;

*Mixed*—may involve any combination of the other impairments;

*Psychogenic*—involves a psychic component either as the basic cause of, or as a source of aggravation of, hearing impairment.

Any of these types, alone or in combination, may underlie a permanent hearing impairment which constitutes a social and educative disability. All require definitive diagnostic description prior to any educative disposition.

Language impairment is much more difficult to apprehend and study. Because the details of complex cortical function cannot be observed directly, the precise nature of a language disorder must remain in large part obscure. In general there are two types (it is taken for granted that there will be language problems in various kinds and degrees of mental retardation):

1. Disability or aberration in learning to make the necessary relations among symbols, meanings, and experience, associated with classical neurological or psychiatric entities such as motor palsy, encephalitis, meningitis, epileptoid diseases, schizophrenia, and the like;
2. Similar disability or a berration in function evidently relatable to no known syndromes nor symptoms, and presumably existing on unknown bases of development.

There are many ramifications of these various language disorders for which the task of diagnostic description is severe in the extreme. Many children who belong in this group are thought to be deaf or mentally retarded; yet they should be handled differently from deaf children, and retraining methods suitable for them are quite different. Children with these language disorders cannot be handled in large groups. Involving as it does the entire behavioral complex of the child, a language disorder is unique with each child.

Speech disorders are quite readily described in four major categories:

1. *Delayed and retarded speech* exist with the presumption of normal hearing and language mechanisms. Retarded speech involves a reasonably normal time of onset, with noticeable lag in development; infantile perservation is its most common form. Delayed speech implies lack of onset, far beyond any reasonable limit; there are many possible contributory factors;
2. *Articulatory disorders* involve disability in the physiologic details of uttering speech sounds in connected discourse. There are two principal types:
    a. Physiologic disorders for which there is no evident structural basis; the articulatory mechanism is apparently normal but the habit-patterns in the movement of the speech-articulators are aberrant;
    b. Anatomic disorders (such as a cleft palate, or a severe malocclusion) wherein the speech deficiency is a direct product of the organic status.

3. *Dysphonia* relates to a disorder in the propagation of voice. It is commonly caused by misuse of the thoracic or laryngeal structures. Aside from this, there are various lesions of these structures (in quite low prevalence among children) which may cause dysphonia.
4. *Dysarthria* is a general term referring to a wide variety of speech disorders caused by brain injuries or disorders or anomalies, wherein sensory-motor function is interfered with or seriously affected. These problems usually occur with relation to known neurological categories.

Reference is not made in this context to any standard of or predilection for "Correct speech." This is an aesthetic matter, or value-judgment, which lies outside the province of speech pathology. A speech disorder is a condition wherein the communicative process is interfered with more or less seriously, and whereby undue attention is called to the act of speech utterance. This status is independent of prejudicial opinion about any particular dialect or idiomatic construction. In these terms, almost all speech disorders are amenable to correction or improvement.

Although it is often thought of as a speech disorder, stuttering is quite different from the problems outlined above. Interference with smooth-flowing speech is only the symptom of the basic problem, and, just as one would not treat measles by rubbing salve on the skin lesions, so one would not treat stuttering by routine articulatory drillwork. The distinction between stammering and stuttering is not sound; it exists in the public mind in large part because the roots of these two words were in German, and an attempt was made years ago in Germany to describe two degrees of symptoms. A similar descriptive effort is current in the terms "primary" and "secondary" stuttering. Measles is measles, regardless of the severity of any particular case, and the problem of helping the stutterer is better met if one does not confuse degree with status.

Stuttering is a complex of the dynamics of personality, wherein there exists a severe anxiety-state, anticipatory and inhibiting, which causes a block in the sensory-motor synchrony of speech utterance. By definition, stuttering is an operational disorder; when there are neuro-organic involvements, the condition is something else. A principal symptom is a dysrhythmia that commonly takes the form of perservation or retardation in the utterance of a speech sound or syllable. The usual period of onset is age 3 to age 6 years. In its developed form, stuttering is commonly amenable to compensatory therapy, rarely to complete cure. The preferred attack on the problem is prevention; that is, recognition of early symptoms and removal from the child's environment of the precipitating factors. Stuttering is a severe disability, extremely costly to individual and community, and constitutes a real challenge in treatment and education.

It seems quite clear that, as children with special needs for training and learning, a large proportion of those with hearing, language, and speech disorders present their basic needs prior to statutory school age. Accordingly, it seems apparent that much of the work of training in communication habits and skills should be initiated in the preschool years. For this reason, among others, the details of case-finding, diagnosis, treatment and follow-up (including audiologic guidance, and language and speech training) are best handled in a combined school-health program. Later, when the child reaches school-age, or becomes eligible for a special training program under special public education, there should be a smooth transition in principles, methods and procedures, so that his optimum progress is fostered to the fullest extent. This sort of rehabilitative effort is not the prerogative of any particular professional group, but remains a many-sided cooperative endeavor involving the physician, the audiologist, the speech correctionist, the psychologist, the teacher and, above all, the parent. It cannot be fully effective except as this group learns to work as a team, sharing common principles and common objectives.

Note: Much of the detail of the nomenclature and scope of the field was worked out in sessions of the sub-committee on Hearing, Language and Speech Disorders, of the Committee to Study the Educational Needs of Atypical Children in Maryland. The writer was chairman of this subcommittee and undertook to work up this material.

# PHYSICAL THERAPISTS PRACTICE ACT

RICHARD ZARBOCK, R.P.T., M.A.*

On June 29, 1955 the General Assembly of the State of Delaware passed and enacted into law an amendment to the Delaware Code, entitled "Professions and Occupations" which provides for the examination and registration of physical therapists. You may ask, "What does this law mean to me as a physician?" It means that physical therapists who are registered by the Delaware State Examining Board of Physical Therapists are fully qualified professionally, morally, and educationally to practice physical therapy under the prescription, supervision and direction of a person licensed in Delaware to practice medicine and surgery.

## APPLICATION REQUIREMENTS

An applicant for a certificate of registration as a physical therapist must file a written application on forms provided by the Examining Board of Physical Therapists which is appointed by the Governor. The applicant shall present satisfactory evidence that he is at least twenty years of age, is of good moral character, has obtained h high school education or its equivalent, and has been graduated from a school of physical therapy approved by the appropriate subcommittee of the American Medical Association. He shall pay $15 and present himself for examination at the first meeting thereafter at which examinations are to be held.

## EXAMINATION

The examination shall embrace the subjects, theories, and techniques used by the physical therapist in the treatment of disease, injury, and mental conditions by the use of physical, chemical and other properties of heat, light, water, electricity, massage and therapeutic exercise which includes posture and rehabilitation procedures. The use of roentgen rays and radium for diagnostic and therapeutic purposes, and the use of electricity for surgical purposes is not authorized.

## RESTRICTIONS OF NON-REGISTRANTS

A person who is not registered with the Examining Board as a physical therapist shall not represent himself as being so registered and shall not use in connection with his name the words or letters "R.P.T.", "Registered Physical Therapist", or "Physio-therapist", or any other letters, words or insignia indicating or implying that he is a registered physical therapist.

## GROUNDS FOR REFUSAL OR REVOCATION

The Board shall refuse to grant registration to any physical therapist or shall revoke the registration of any physical therapist for the following reasons:

1. If he is addicted to the use of narcotic drugs or alcoholic beverages.
2. If he has been convicted of violating any state or federal narcotic law.
3. If he has obtained or attempted to obtain registration by fraud or material misrepresentation.
4. If he is guilty of any act derogatory to the standing and morals of the profession of physical therapy, including the treatment or undertaking to treat ailments of people other than by physical therapy, and undertaking to practice independent of the prescription, direction and supervision of a person licensed in Delaware to practice medicine and surgery.

## CONCLUSION

In conclusion, it would be well to stress the importance of the Physical Therapists Practice Act to the physician as an aid to providing both better treatment services and more adequate protection for the patient. The Act has been endorsed and encouraged by the American Medical Association, the Delaware Medical Society and the American Physical Therapy Association.

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* Coorinator of Physical & Occupational Therapy, Division of Crippled Children's Services, State Board of Health. Secretary & Treasurer, Delaware Examining Board of Physical Therapists.

# ✚ Editorials ✚

## A DOUBLE-EDGED SWORD

Today's family physician is longer trained and better equipped than his counterpart of years ago. An obvious index of this is the number of general physicians who maintain fluoroscopes in their offices.

Careful fluoroscopic examination is without doubt a primary factor in the diagnosis of many diseases of the respiratory and circulatory systems. Improper use of this method of examination, however, can be dangerous. The hasty observer may overlook significant data upon which may hinge the diagnosis and guide to proper treatment. The careless operator can easily subject himself and his patient to excessive amounts of radiation.

It is essential that every physician having access to a fluoroscope should periodically check his fluoroscopic habits in order to insure proper protection to all concerned.

## IT COULD HAPPEN HERE

In the event anyone missed the significance of Delaware's venereal disease rate, it is one record not subject to envy. The person who sees no cause for alarm should read the article "An Outbreak of Gonorrhea and Early Syphilis in Massachusetts" that appeared in the May 22nd issue of *The New England Journal of Medicine*. It could happen here.

## SAY WHAT YOU MEAN

Articles in *The Saturday Evening Post* (July 13th) and *The Saturday Review* (August 10th) are but two of many excellent ones recently published in a plea for people to express themselves clearly.

This is not a reminder to medical writers to clean up their manuscripts but rather one to practicing physicians to combat the number one public criticism of the physician — his failure to properly explain the patient's condition. Surveys have shown this factor to be far above fee, unavailability, and hasty examination in the list of complaints.

The patient, or the family, has a right to know the facts. It is our duty to give these facts in clear, understandable language. A small amount of effort in this direction will result in a tremendous public relations improvement.

Roger Murray, M.D.

*President Medical Society of Delaware 1957*

**RELIEVES THE GNAWING ACHE**

# Pro-Banthīne® provides rapid control of pain in peptic ulcer

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These actions of Pro-Banthīne and its demonstrated effectiveness in accelerating ulcer healing[2-5] mark the drug as a most valuable adjunct in the treatment of peptic ulcer.

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1. Lichstein, J.; Morehouse, M. G., and Osmon, K. L.: Am. J. M. Sc. *232:*156 (Aug.) 1956.
2. Sun, D. C. H., and Shay, H.: Arch. Int. Med. *97:*442 (April) 1956.
3. Rafsky, H. A.; Fein, H. D.; Breslaw, L., and Rafsky, J. C.: Gastroenterology *27:*21 (July) 1954.
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5. Silver, H. M.; Pucci, H., and Almy, T. P.: New England J. Med. *252:*520 (March 31) 1955.

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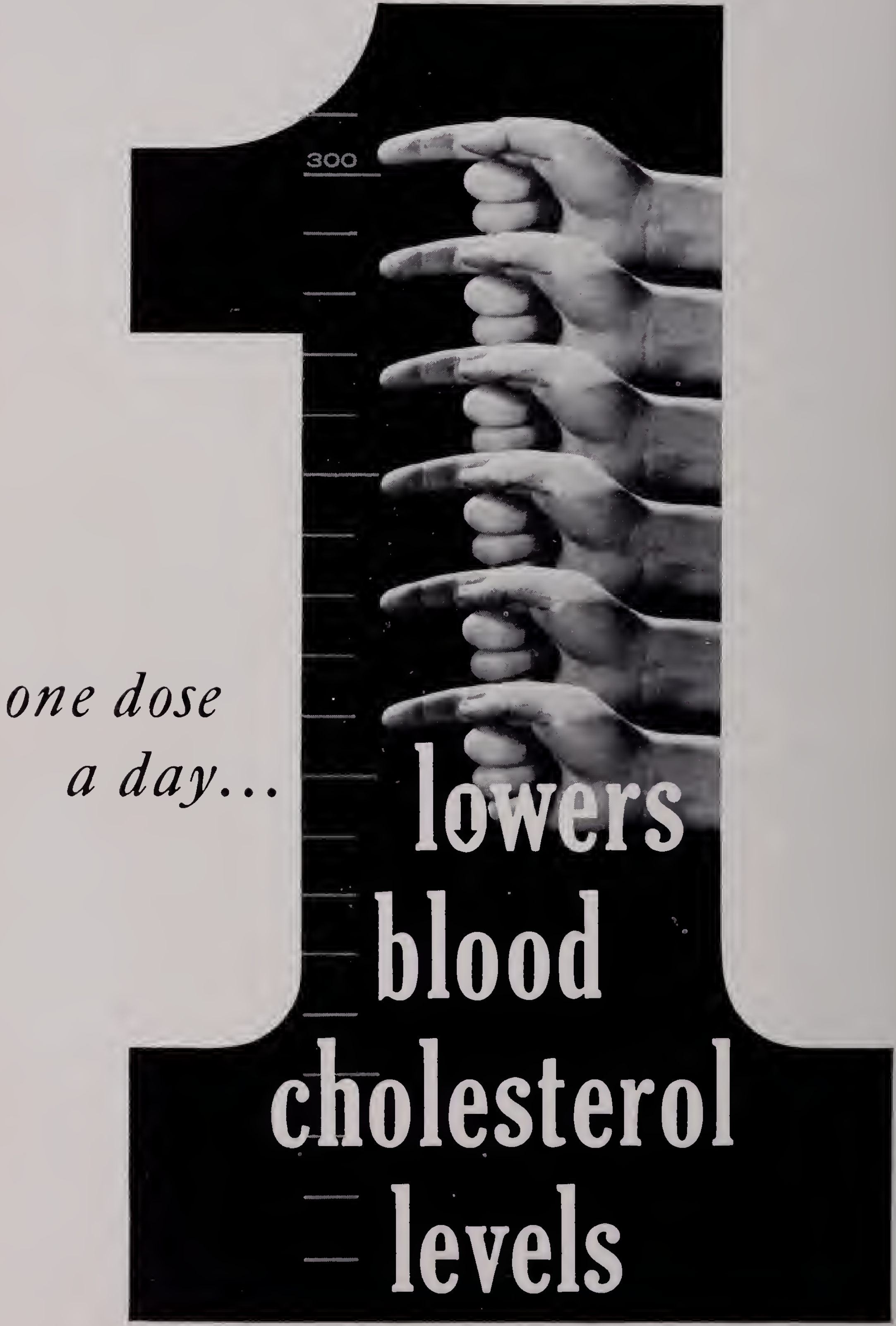
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*Keyes, B. L.: Pennsylvania M. J. 60: 177, Feb. 1957.*

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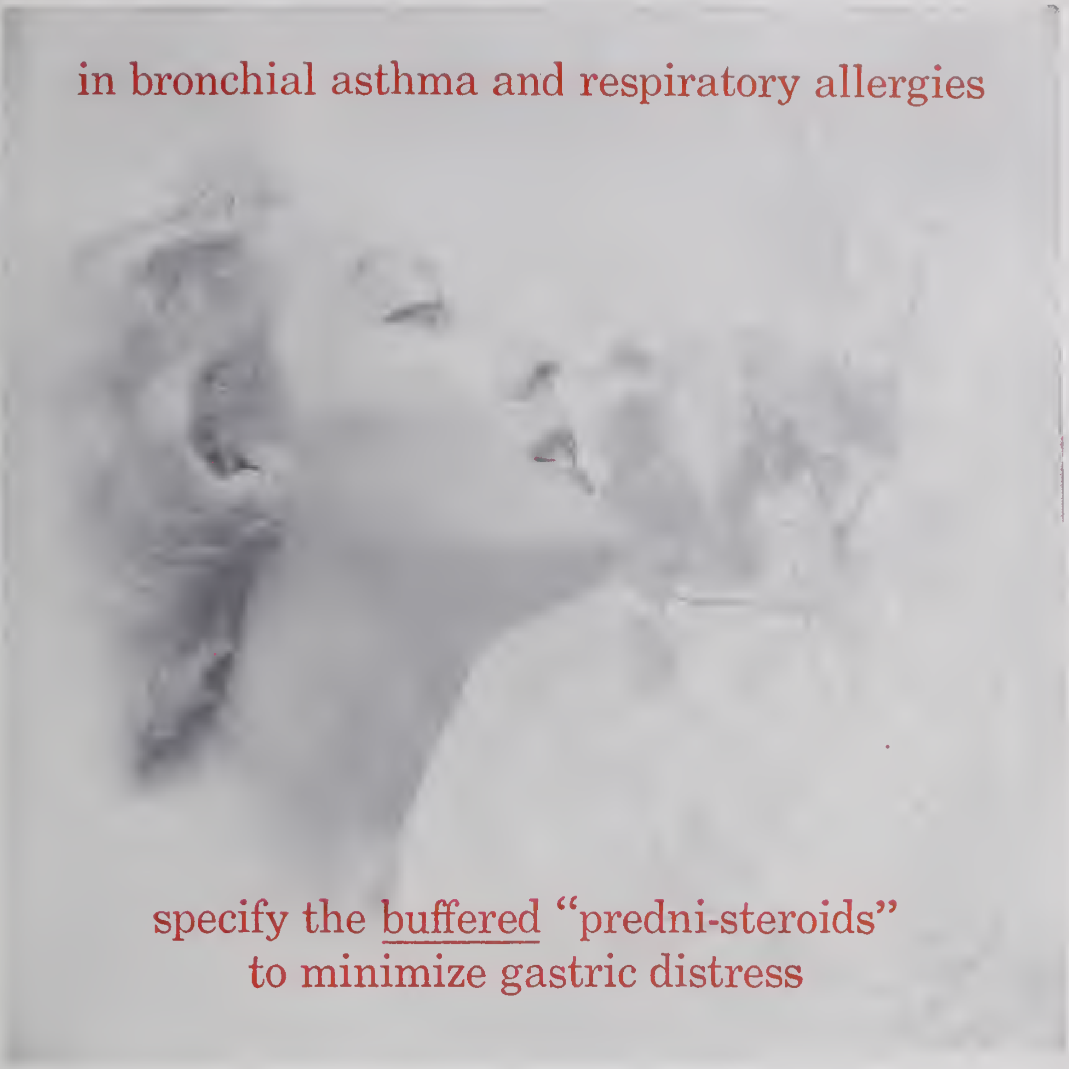
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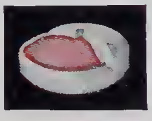

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1. Locket, S.: Brit. M.J. *1*:809 (Apr. 2) 1955.

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2. Wright, W.T., Jr., et al.: J. Kansas M. Soc. *57*:410 (July) 1956.

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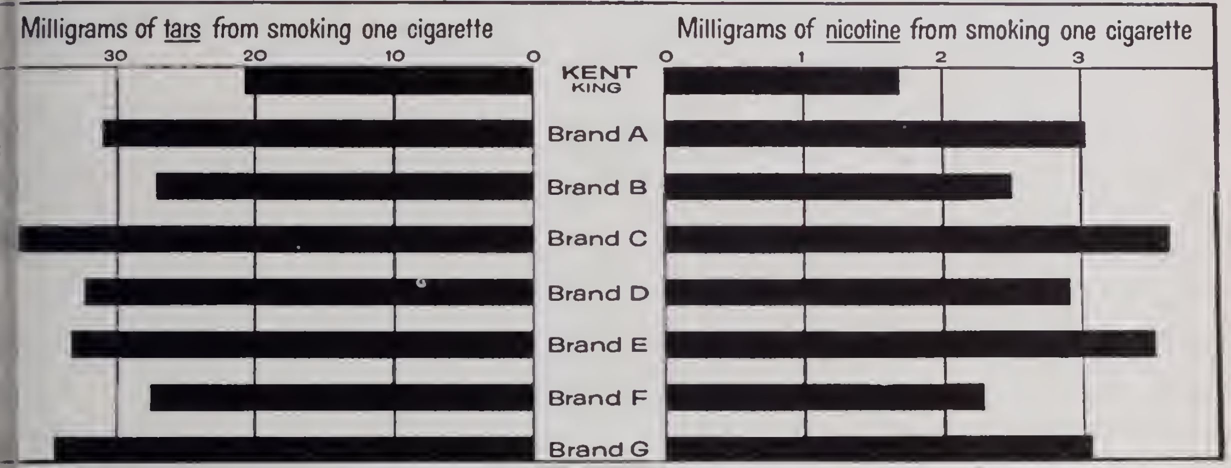

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with the new exclusive Micronite Filter

# ANNUAL MEETING

# OCTOBER 25-26

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# DELAWARE

# ANNUAL MEETING

# OCTOBER 25 - 26

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*Ferguson, J. T., and Linn, F. V. Z.: Antibiotic Med. & Clin. Therapy *3*:329, 1956.

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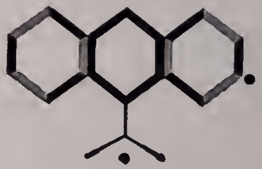

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# DELAWARE STATE MEDICAL JOURNAL

*Official Organ of the Medical Society of Delaware*

INCORPORATED 1789

VOLUME 29 OCTOBER, 1957 NUMBER 10

## THE COMMON CUT

Complete Contents on Page iv

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OCT 23 1957
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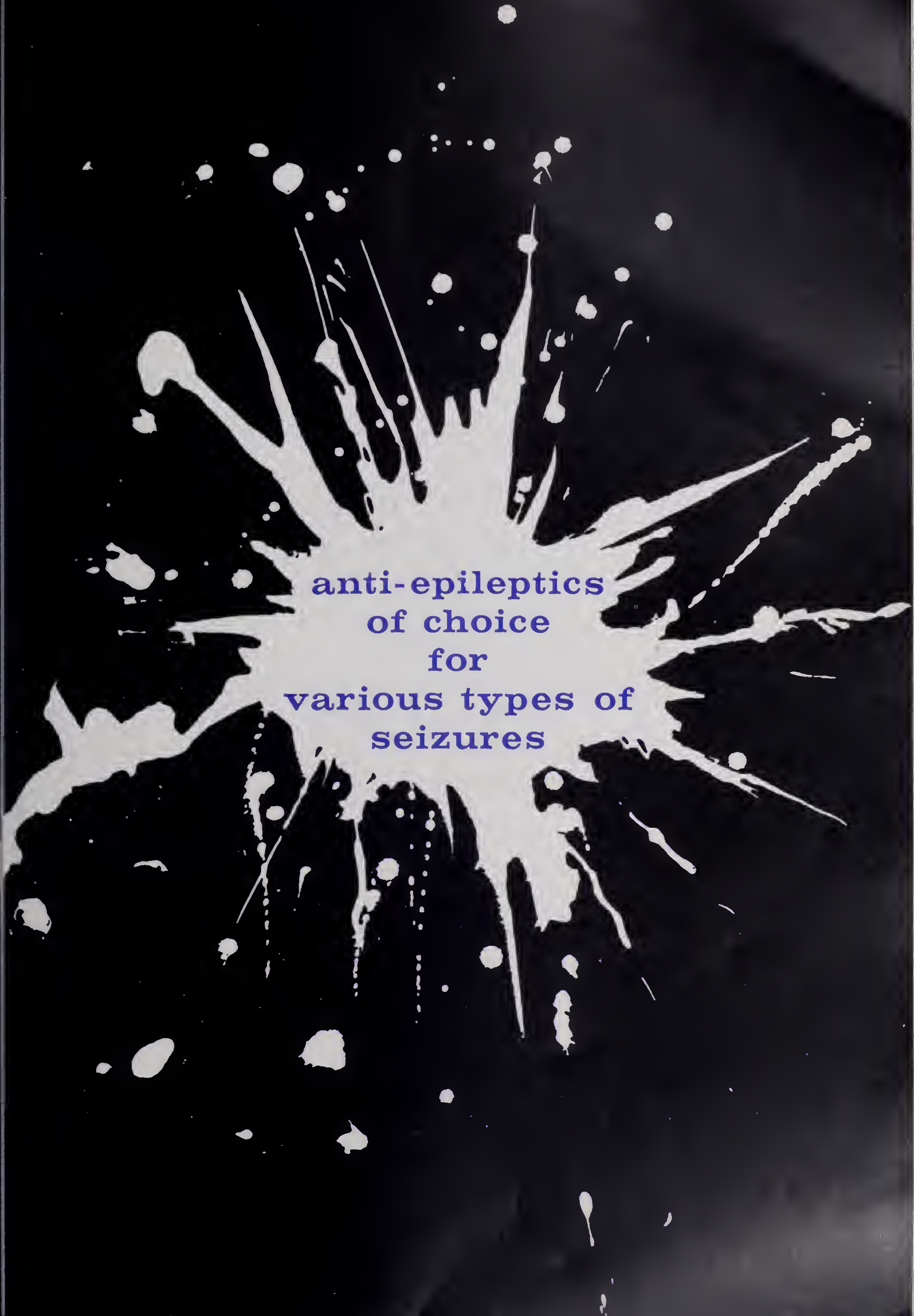
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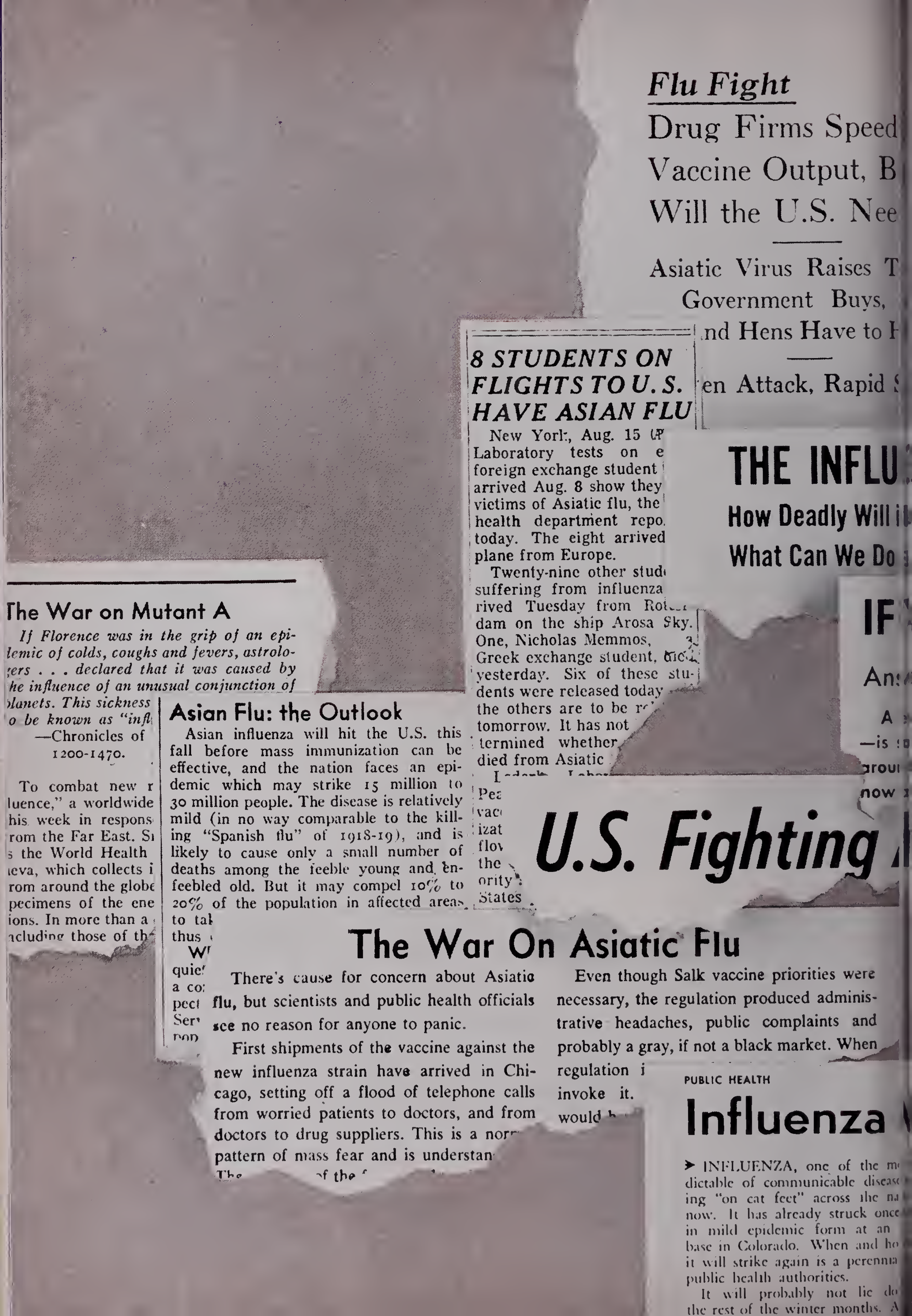

## Flu Fight

Drug Firms Speed
Vaccine Output, B
Will the U.S. Nee

Asiatic Virus Raises T
Government Buys,
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en Attack, Rapid S

## 8 STUDENTS ON FLIGHTS TO U. S. HAVE ASIAN FLU

New York, Aug. 15 (P
Laboratory tests on e
foreign exchange student
arrived Aug. 8 show they
victims of Asiatic flu, the
health department repo
today. The eight arrived
plane from Europe.
Twenty-nine other stud
suffering from influenza
rived Tuesday from Rot
dam on the ship Arosa Sky.
One, Nicholas Memmos,
Greek exchange student, die
yesterday. Six of these stu-
dents were released today
the others are to be r
tomorrow. It has not
termined whether
died from Asiatic
Pea
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States

## THE INFLU

How Deadly Will i
What Can We Do

## IF

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## The War on Mutant A

*If Florence was in the grip of an epi-*
*lemic of colds, coughs and fevers, astrolo-*
*gers . . . declared that it was caused by*
*he influence of an unusual conjunction of*
*planets. This sickness*
*o be known as "infl*
—Chronicles of
1200-1470.

To combat new r
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s the World Health
eva, which collects i
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pecimens of the ene
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ncluding those of th

## Asian Flu: the Outlook

Asian influenza will hit the U.S. this fall before mass immunization can be effective, and the nation faces an epidemic which may strike 15 million to 30 million people. The disease is relatively mild (in no way comparable to the killing "Spanish flu" of 1918-19), and is likely to cause only a small number of deaths among the feeble young and enfeebled old. But it may compel 10% to 20% of the population in affected areas
to tal
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pop

## U.S. Fighting

## The War On Asiatic Flu

There's cause for concern about Asiatic flu, but scientists and public health officials see no reason for anyone to panic.

First shipments of the vaccine against the new influenza strain have arrived in Chicago, setting off a flood of telephone calls from worried patients to doctors, and from doctors to drug suppliers. This is a norr
pattern of mass fear and is understan
The of the

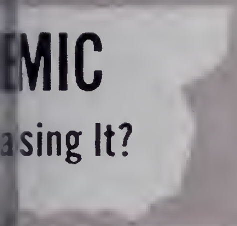
Even though Salk vaccine priorities were necessary, the regulation produced administrative headaches, public complaints and probably a gray, if not a black market. When
regulation i
invoke it.
would

PUBLIC HEALTH

## Influenza

➤ INFLUENZA, one of the m
dictable of communicable diseas
ing "on cat feet" across the na
now. It has already struck once
in mild epidemic form at an
base in Colorado. When and ho
it will strike again is a perenni
public health authorities.
It will probably not lie do
the rest of the winter months. A

to counteract complications from "ORIENTAL FLU"



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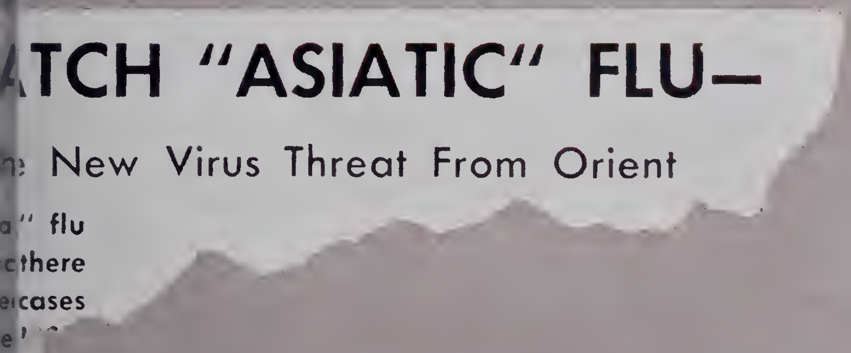

TCH "ASIATIC" FLU—
New Virus Threat From Orient
a" flu
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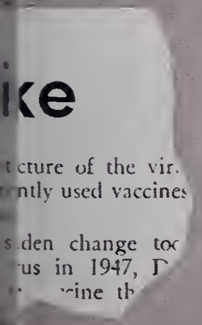

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overgrowth

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Basic oral dosage (6-7 mg. per lb. body weight per day) in the average adult is 4 capsules of ACHROSTATIN V per day, equivalent to 1 Gm. of ACHROMYCIN V.

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**Recent Observations**

# On Self-Regulated Schedules For Infants

Genetically acquired behavioral predispositions enable the normal baby to regulate its feeding intake and periodic hunger sensations, its feeding habits. These physiological regulatory forces may be satisfied by adapting the formula content and feeding period to the individual needs of the infant. It involves a sensible compromise between too rigid a schedule, geared to the clock and too lax a schedule, based on self-demand feedings. Such is the current objective: for either extreme can lead to infant feeding difficulties.

The newborn may become a feeding problem if the prescribed formula is excessive or the feeding schedule rigid. Every time he is awakened abruptly from satisfying slumber to be fed forcefully, the baby gradually loses his enthusiasm for the food and begins to resist the feeding. The young infant may balk at the crude introduction of a new food or feeding procedure without the proper prelude of gradual adaptation of taste, color, consistency and quantity.

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# ARALEN® *in* RHEUMATOID ARTHRITIS

***Extensive studies of rheumatoid arthritis and related collagen diseases—in this country and abroad—have shown the antimalarial Aralen phosphate to be highly effective and well tolerated in a large percentage of patients.***

### *Clinical Results with Aralen in Rheumatoid Arthritis*

| Author | No. of Cases | Major Improvement | Minor Improvement | No Effect |
|---|---|---|---|---|
| Haydu[1] | 28 | 22 | 5 | 1 |
| Rinehart[2] | 25 | 12 | 4 | 9 |
| Freedman[3] | 50 | 43 | 3 | 4 |
| Bagnall[4] | 108 | 77 | 12 | 19 |
| Bruckner[5] | 36 | 32 | 0 | 4 |
| Cohen and Calkins[6] | 22 | 17 | 3 | 2 |
| Scherbel et al.[7] | 25 | 9 | 8 | 8 |
| Total | 294 | 212 (72%) | 35 (12%) | 47 (16%) |

- Success dependent upon persistent treatment
- Often of benefit where other agents have failed
- Remissions on therapy well maintained
- Remission of 3 to 12 months possible even if treatment is interrupted
- Tachyphylaxis not evident

### GENERAL EFFECTS:

- Patient feels better
- Patient looks better
- Exercise tolerance increases
- Walking speed and hand grip improves

### LABORATORY EFFECTS:

- E. S. R. may fall slowly

### ANALGESICS AND STEROIDS:

- Requirements usually reduced or eliminated

### JOINT EFFECTS:

- Pain and tenderness relieved
- Mobility increases
- Swellings diminish or disappear
- Muscle strength improves
- Rheumatic nodules may disappe
- Even severe or advanced deform may improve
- *Active* inflammatory process u subsides
- Joint effusion may diminish

### DOSAGE:

Aralen is cumulative in action and requires four to twelve weeks of administration before therapeutic become apparent.

Latest information indicates that a initial dose of 250 mg. of Aralen phosphate is preferable to the high doses sometimes recommended. Ho If side effects appear, withdraw Ar for several days until they subside. Reinstate treatment with 125 mg. daily and, if well tolerated, increas 250 mg. The usual maintenance do

# New Chemotherapy

**INDICATIONS:**

- Rheumatoid arthritis, acute or chronic —with or without adjunctive therapy.
- Spondylitis
- Arthritis associated with lupus erythematosus or psoriasis

**THEORY OF ACTION:**

Aralen appears to suppress or induce remission of rheumatoid inflammatory processes by inhibiting adenosinetriphosphatase.

**HOW SUPPLIED:**

**Aralen phosphate:** 250 mg. tablets in bottles of 100 and 1000.
125 mg. tablets in bottles of 100.

## Tolerance:

Aralen is usually well tolerated. Toxic effects are usually mild and to date have been transitory in nature, disappearing completely either on continuance or cessation of therapy or on reduction in dosage.

Gastrointestinal disturbances (e.g. nausea, rarely vomiting, diarrhea, abdominal cramps, anorexia) are frequent manifestations of intolerance. Temporary blurring of vision (due to interference with accommodation) is also relatively frequent.

Pleomorphic skin eruptions (e.g. lichenoid, maculopapular, purpuric), although generally mild, may preclude the use of an optimum dosage schedule. If a skin reaction persists on a reduced dosage schedule, or recurs after reinstitution of reatment with gradually increasing doses, discon-inue Aralen till the lesion again disappears and onsider resuming treatment with Plaquenil® brand of hydroxychloroquine).

Less frequently transitory vertigo, headache, assitude, or neurological disturbances, such as nervousness, irritability, emotional change, and nightmares have been reported. Instances of unexplained slight gradual weight loss as the patient's general health and arthritic condition improved have been mentioned. Occasional instances of bleaching (depigmentation) of the hair have been escribed.

Although an occasional instance of leukopenia, with normal differential count, has been reported WBC about 3000), it has not proved troublesome because it has always been reversible on discontinuance, or diminution of the dose. Even spontaneous eversal may occur while full dosage is maintained.

## Caution:

Aralen is known to concentrate in the liver and, although hepatic damage has never been reported, the drug should be used with caution in the presence of liver disease. In the presence of severe gastrointestinal, neurological, or blood disorders, the drug should be used with caution or not at all. If such disorders occur during the course of therapy, the drug should be discontinued. Concomitant use of gold or phenylbutazone with Aralen should be avoided because of the tendency of these agents to produce drug dermatitis.

## Clinical Comments:

Of fifty patients receiving Aralen therapy, "43 have become really well; that is, they have no stiffness, and any pain that occurs can reasonably be attributed to use of joints affected by secondary degenerative changes. They have no evidence of joint inflammation, but may have a raised erythrocyte sedimentation rate. They have little or no need for analgesics." *Freedman*[3]

"One hundred and twenty-five private patients have been carefully followed clinically and haematologically while receiving well over 200 patient-years of chloroquine [Aralen] therapy. The results are considered good in 70%, one-half of these cases being in remission. Improved work performance, sedimentation rate, and hemoglobin levels paralleled the major objective gain in this 70%. 90% of them remained on chloroquine [Aralen] therapy, half for more than two years. Classical peripheral rheumatoid arthritis, spondylitis, arthritis of juvenile onset, and rheumatoid disease with psoriasis, all appeared to respond about equally well.

"It is suggested that chloroquine comes closer to the ideal for long-term, safe, control of rheumatoid disease than any other agent now available." *Bagnall*[4]

"Out of the 36 rheumatoid arthritis cases we treated . . . favorable results were obtained in 32 cases. *Bruckner et al.*[5]

## ferences

1. Haydu, G.G.: Rheumatoid arthritis therapy: a rationale and the use of chloroquine diphosphate, *Am. J. M. Sc.* 225:71, Jan., 1953.
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*simple, well-tolerated routine for "sluggish" older patients*

one tablet t.i.d.

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"therapeutic bile"

**Establishes free drainage of biliary system**—effectively combats bile stasis and improves intestinal function.

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**Relieves certain G.I. complaints**—improved biliary and intestinal function enhance medical regimens in hepatobiliary disorders.

DECHOLIN Tablets: (dehydrocholic acid, AMES) 3¾ gr.

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AMES COMPANY, INC · ELKHART, INDIANA · Ames Company of Canada, Ltd., Toronto

*For anxiety, tension and muscle spasm in everyday practice.*

- well suited for prolonged therapy
- well tolerated, relatively nontoxic
- no blood dyscrasias, liver toxicity, Parkinson-like syndrome or nasal stuffiness

ELAXES BOTH MIND AND MUSCLE
ITHOUT IMPAIRING MENTAL OR PHYSICAL EFFICIENCY

**Miltown**®

*tranquilizer with muscle-relaxant action*

2-methyl-2-**n**-propyl-1,3-propanediol dicarbamate — U. S. Patent 2,724,720

*Supplied:* 400 mg. scored tablets
200 mg. sugar-coated tablets

*Usual dosage:* One or two
400 mg. tablets t.i.d.

*Literature and samples available on request*

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DISCOVERED AND INTRODUCED BY WALLACE LABORATORIES

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AN IMPORTANT ADVANCE IN MENOPAUSAL THERAP

**Because** it replaces *half* control with *full* control.
**Because** it treats the *whole* menopausal syndrome
**Because** *one* prescription manages *both* the psychic and somatic symptoms.

SUPPLIED: Bottles of 60 tablets.
Each tablet contains:

**MILTOWN®** (meprobamate, Wallace) ........ **400 mg.**
2-methyl-2-*n*-propyl-1,3-propanediol dicarbamate.
U. S. Patent No. 2,724,720.

**Conjugated Estrogens (equine)** ........ **0.4 mg.**
Licensed under U. S. Patent No. 2,429,398.

DOSAGE: One tablet t.i.d. in 21-day courses with one week rest periods. Should be adjusted to individual requirements.
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*Two-dimensional treatment of the menopause*

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MILTOWN® A Proven Tranquilizer + CONJUGATED ESTROGENS (EQUINE) A Proven Estrogen

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*who discovered and introduced Miltown, the original meprobamate.*

*Active relief*
*in*
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**HYDRYLLIN®**
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**allays bronchial spasm** • **liquefies tenacious secretions** • **suppresses allergic manifestations**

The ingredients of Hydryllin Compound are proportioned to provide high therapeutic response.

Each 4 cc. (one teaspoonful) contains:

| | | | |
|---|---|---|---|
| minophyllin | 32.0 mg. | Chloroform | 8.0 mg. |
| iphenhydramine | 8.0 mg. | Sugar | 2.8 Gm. |
| mmonium chloride | 30.0 mg. | Alcohol 5% (v/v) | |

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when anxiety and tension "erupts" in the G. I. tract...

**IN GASTRIC ULCER**

**PATHIBAMATE***

Meprobamate with PATHILON® Lederle

*Combines* Meprobamate (*400 mg.*) the most widely prescribed tranquilizer . . . helps control the "emotional overlay" of gastric ulcer — without fear of barbiturate loginess, hangover or habituation . . . *with* PATHILON (*25 mg.*) the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

*Dosage:* 1 tablet t.i.d. at mealtime. 2 tablets at bedtime. *Supplied:* Bottles of 100, 1,000.

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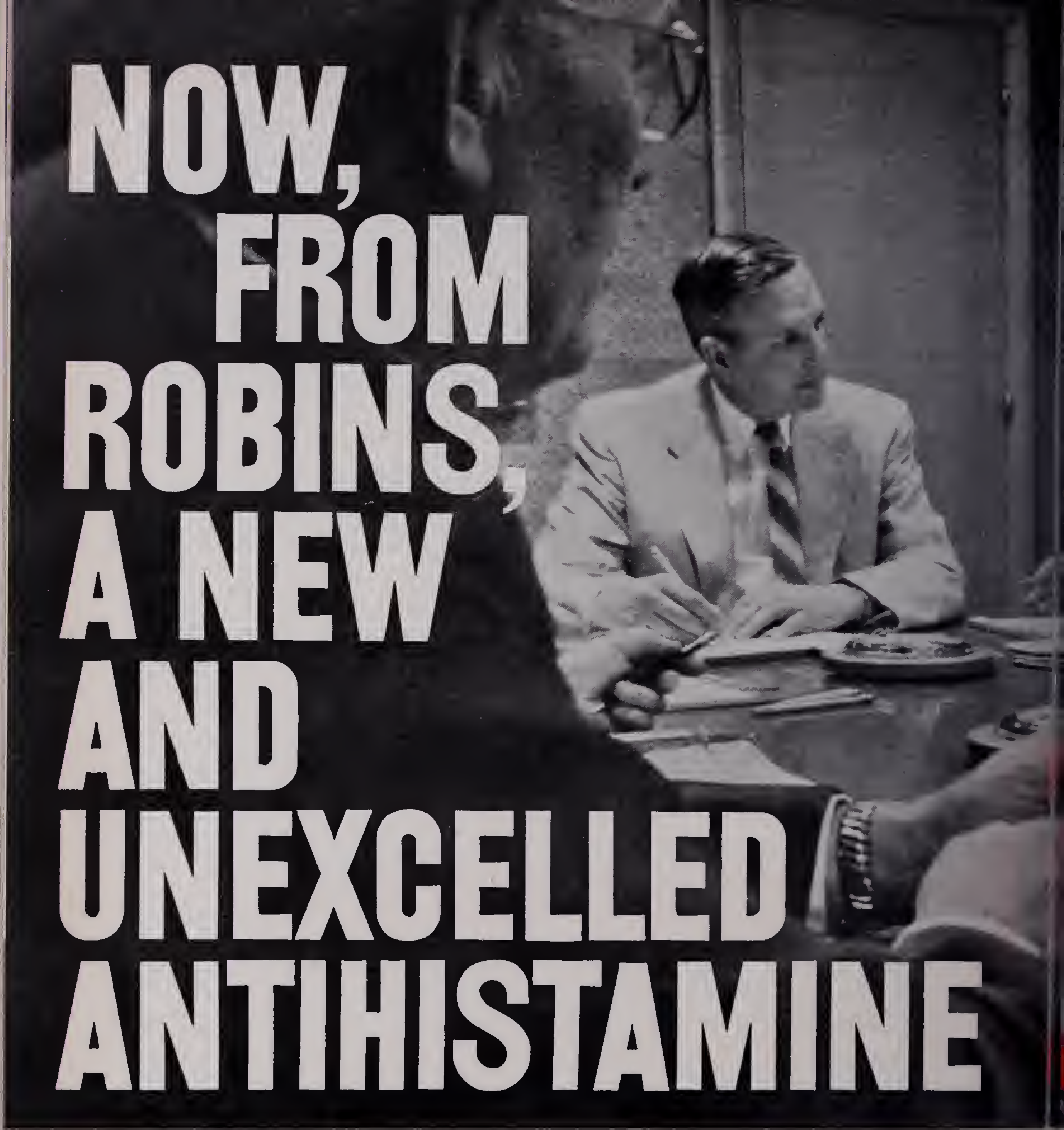


# NOW, FROM ROBINS, A NEW AND UNEXCELLED ANTIHISTAMINE

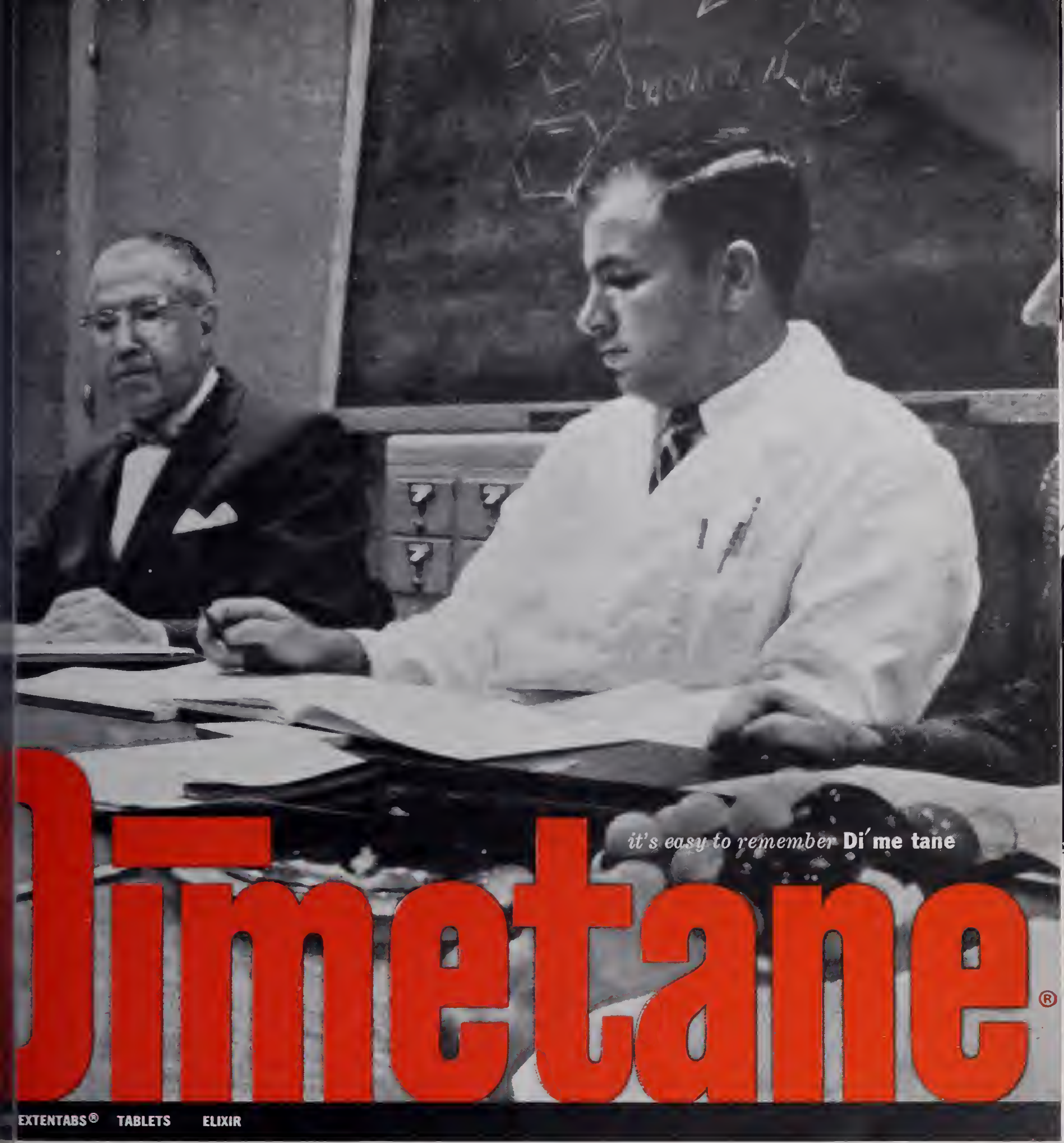
## why **Dimetane** is the best reason yet for you to re-exami the antihistamine you're now using

»*Milligram for milligra DIMETANE potency is unexcelled.* DIMETANE has a therapeutic index unrivaled by other antihistamine—a relative safety unexceeded by any other antihistamine. DIMETANE, even in very low dosage, has been effective when other antihistamines have failed. Drowsiness, other side effects have been at the very minimum.

| Diagnosis | No. of Patients | Response | | | | Side Effects |
|---|---|---|---|---|---|---|
| | | Excellent | Good | Fair | Negative | |
| Allergic rhinitis and vasomotor rhinitis | 30 | 14 | 9 | 5 | 2 | Slight Drowsin |
| Urticaria and angioneurotic edema | 3 | 1 | 1 | 1 | | Dizzy (1) |
| Allergic dermatitis | 2 | | 1 | 1 | | Slight Drowsin |
| Bronchial asthma | 1 | | 1 | | | |
| Pruritus | 1 | | 1 | | | |
| Total | 37 | 15 | 13 | 7 | 2 | Drowsiness (5)<br>Dizzy (1) |

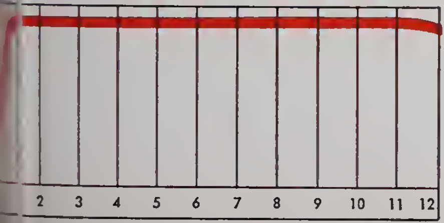
**» unexcelled antihistaminic action**

From the preliminary **Dimetane Extentabs** studies of three investigators. Further clinical investigations will be reported as co



DIMETANE IS PARABROMDYLAMINE MALEATE — EXTENTABS 12 MG., TABLETS 4 MG., ELIXIR 2 MG. PER 5 CC.

**lanket of allergic protection, covering 10-12 urs — with just one Dīmetane Extentab** » *DIMETANE entabs protect patient for 10-12 hours on one tablet.*



Periods of stress can be easily handled with supplementary DIMETANE Tablets or Elixir to obtain maximum coverage.

*Dosage:*

*Adults—One or two 4-mg. tabs. or two to four teaspoonfuls Elixir, three or four times daily. One Extentab q.8-12 h. or twice daily. Children over 6—One tab. or two teaspoonfuls Elixir t.i.d. or q.i.d., or one Extentab q.12h. Children 3-6—½ tab. or one teaspoonful Elixir t.i.d.*

Robins

**A. H. ROBINS CO., INC.**

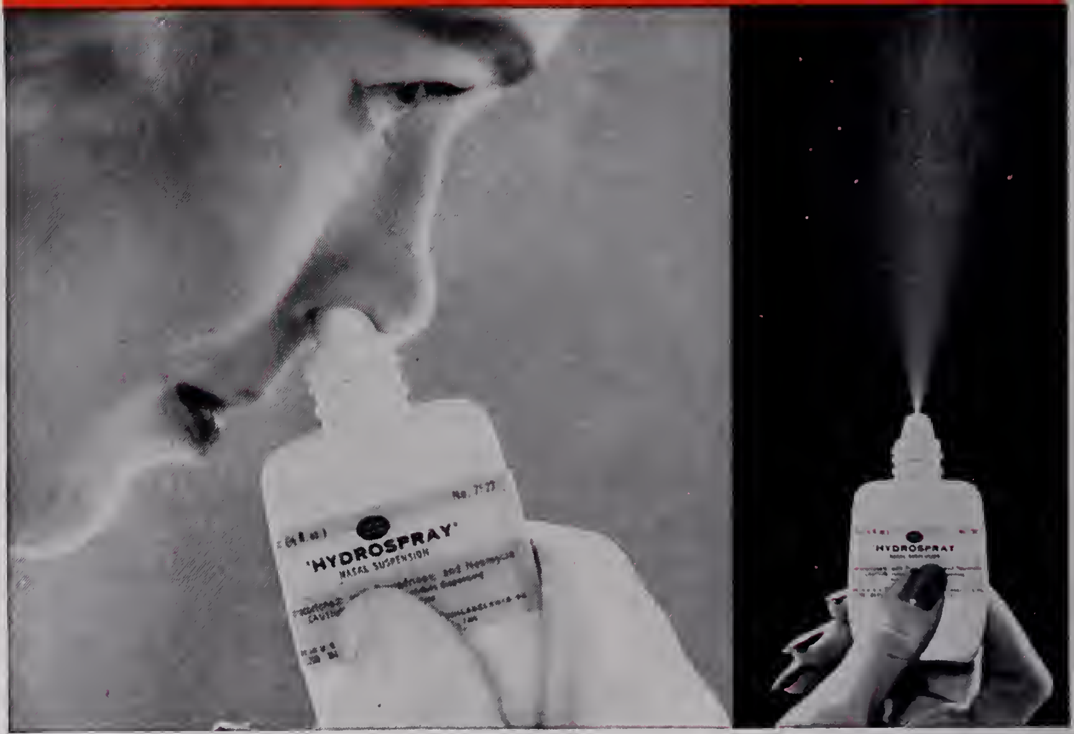
Richmond, Virginia | Ethical Pharmaceuticals of Merit Since 1878

'Hydrospray' NASAL SUSPENSION

(HYDROCORTONE® WITH PROPADRINE® AND NEOMYCIN)

*Anti-inflammatory—*
*Decongestant—Antibacterial*

MAJOR ADVANTAGES: New synergistic anti-inflammatory, decongestant and antibacterial formula. High steroid content assures effective response.



Topically applied hydrocortisone[1] in therapeutic concentrations has been shown to afford a significant degree of subjective and objective improvement in a high percentage of patients suffering from various types of rhinitis. HYDROSPRAY provides HYDROCORTONE in a concentration of 0.1% plus a safe but potent decongestant, PROPADRINE, and a wide-spectrum antibiotic, Neomycin, with low sensitization potential. This combination provides a three-fold attack on the physiologic and pathologic manifestations of nasal allergies which results in a degree of relief that is often greater and achieved faster than when any one of these agents is employed alone.
**INDICATIONS:** Acute and chronic rhinitis, vasomotor rhinitis, perennial rhinitis and polyposis.

**SUPPLIED:** In squeezable plastic spray bottles containing 15 cc. HYDROSPRAY, each cc. supplying 1 mg. of HYDROCORTONE, 15 mg. of PROPADRINE Hydrochloride and 5 mg. of Neomycin Sulfate (equivalent to 3.5 mg. of neomycin base).

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DIVISION OF MERCK & CO., INC.
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**REFERENCE:** 1. Silcox, L. E., *A.M.A. Arch. Otolaryng.* 60:431, Oct. 1954.

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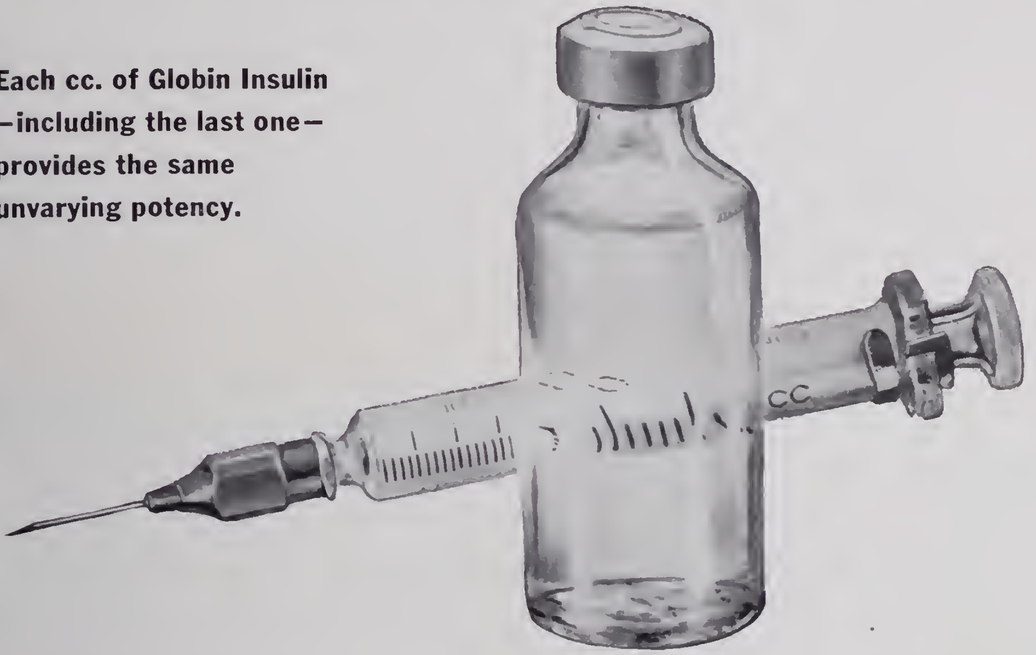

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**24-hour control for the majority of diabetics**

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**'B. W. & CO.'®**

**BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York**

*"the value of analgesic and tranquilizing agents should be clearly recognized in the management of [angina]..."*[1]

*new for angina*

PETN + ATARA

PENTAERYTHRITOL TETRANITRATE

BRAND OF HYDROXYZIN

**CARTRAX***

**links freedom from anginal attacks with a shelter of tranquilit**

In pain. Anxious. Fearful. On the road to cardiac invalidism. These are the pathways of angina patients. For fear and pain are inextricably linked in the angina syndrome.

For angina patients—perhaps the next one who enters your office—won't you consider new CARTRAX? This doubly effective therapy combines PETN (pentaerythritol tetranitrate) for lasting vasodilation and ATARAX for peace of mind. Thus CARTRAX relieves not only the anginal pain but reduces the concomitant anxiety.

*Dosage and supplied:* begin with 1 to 2 yellow tablets (10 mg. PETN plus 10 mg. ATARAX) 3 to 4 times daily. This may be increased for maximal effect by switching to *pink* tablets (20 mg. PETN plus 10 mg. ATARAX). In bottles of 100.

CARTRAX should be taken *before* meals, on a *continuous* dosage schedule. Use with caution in glaucoma.

1. Russek, H. I.: J. Am. Geriat. Soc. 4:877 (Sept.) 1956.

*Trademark

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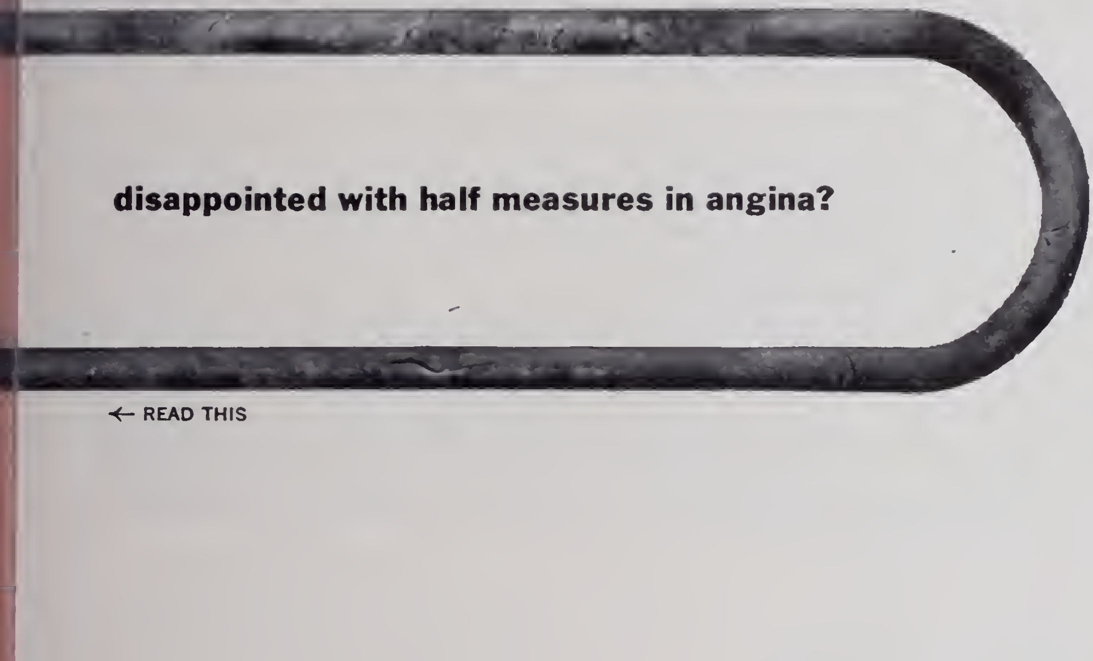
New York 17, New York



**disappointed with half measures in angina?**

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in acne

*"results were uniformly encouraging"*[1]

**pHisoHex®**

*Sudsing, nonalkaline antibacterial detergent— nonirritating, hypoallergenic.*

The acne skin that is "surgically clean" is the one most likely to clear completely. Hodges[1] found that standard acne treatment usually results in "mediocre success" for most patients. *The addition of pHisoHex® washings to standard treatment produced results that far excel any obtained previously.*

pHisoHex, a powerful antibacterial skin cleanser containing hexachlorophene, removes oil and virtually all the bacteria from the skin surface.

For best results prescribe from four to six pHisoHex washings of the acne area daily.

1. Hodges, F. T.: GP, *14*:86, Nov., 1956.

pHisoHex, trademark reg. U. S. Pat. Off.

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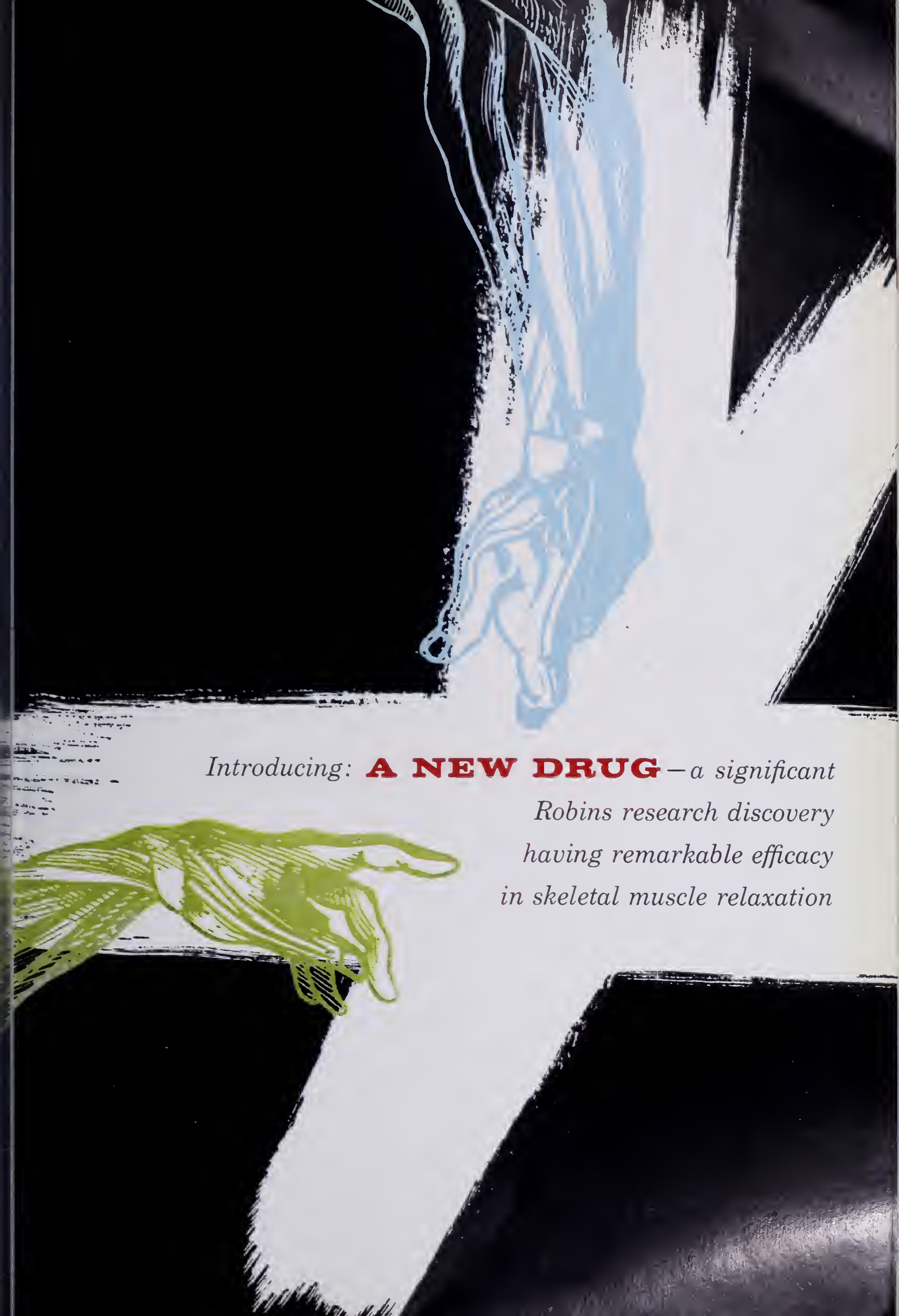
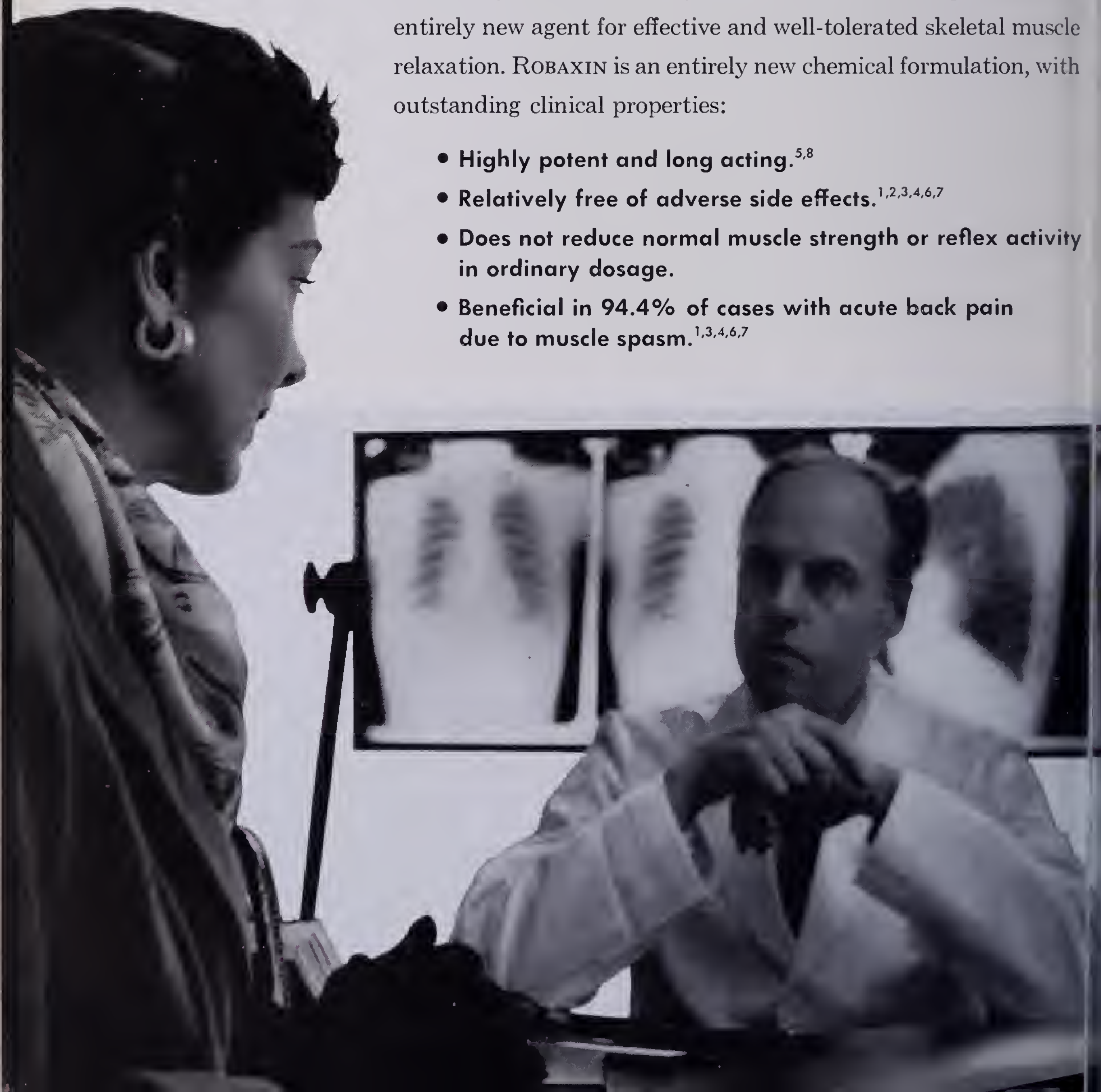

Introducing: **A NEW DRUG**—*a significant Robins research discovery having remarkable efficacy in skeletal muscle relaxation*

# Significant Robins research discovery:

*a highly efficient skeletal muscle relaxant* **Ro**

ROBAXIN – synthesized in the Robins Research Laboratories, and intensively studied for five years – introduces to the physician an entirely new agent for effective and well-tolerated skeletal muscle relaxation. ROBAXIN is an entirely new chemical formulation, with outstanding clinical properties:

- **Highly potent and long acting.**[5,8]
- **Relatively free of adverse side effects.**[1,2,3,4,6,7]
- **Does not reduce normal muscle strength or reflex activity in ordinary dosage.**
- **Beneficial in 94.4% of cases with acute back pain due to muscle spasm.**[1,3,4,6,7]



# baxin®

(Methocarbamol Robins, U.S. Pat. No. 2770649)

## *Highly specific action*

Robaxin is highly specific in its action on the internuncial neurons of the spinal cord – with inherently sustained repression of multisynaptic reflexes, but with no demonstrable effect on monosynaptic reflexes. It thus is useful in the control of skeletal muscle spasm, tremor and other manifestations of hyperactivity, as well as the pain incident to spasm, without impairing strength or normal neuromuscular function.

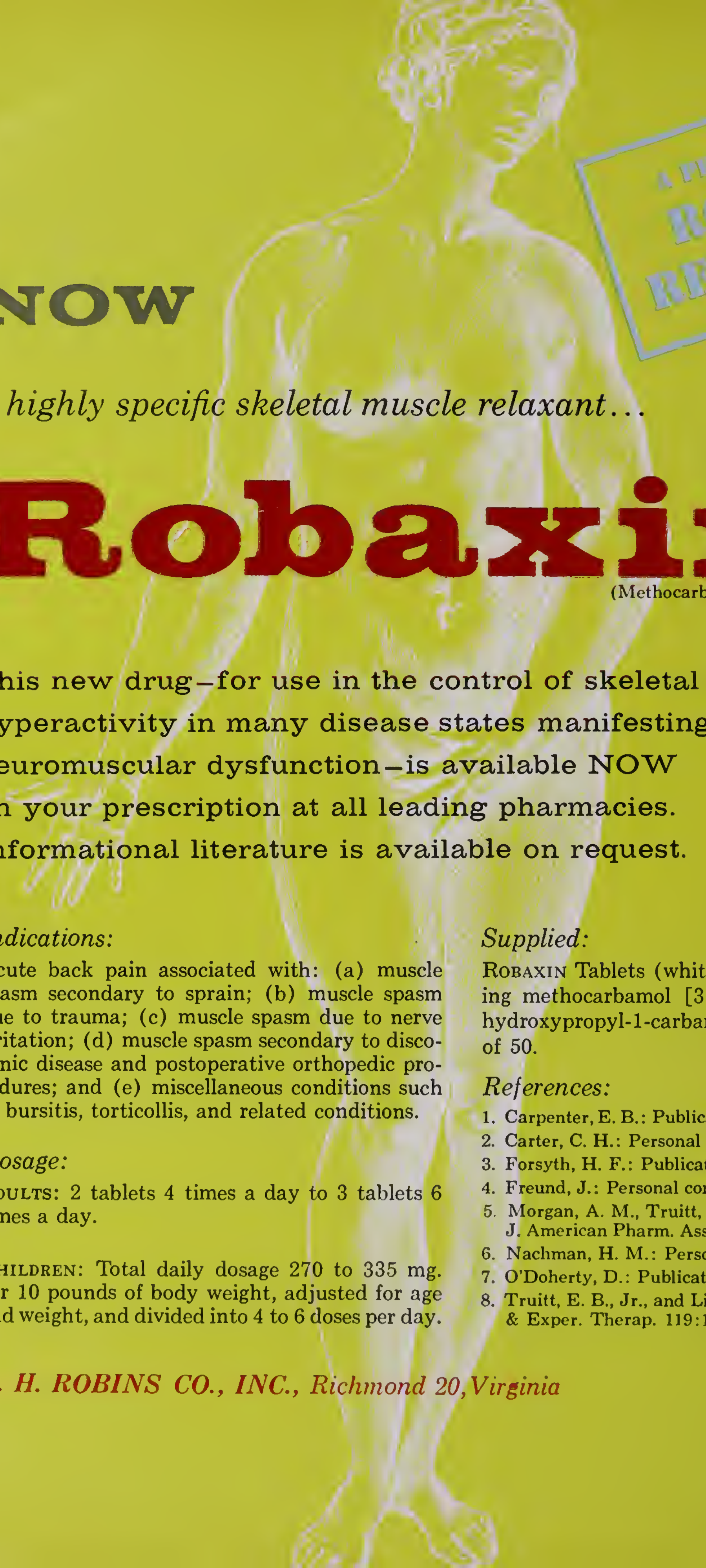
## *Beneficial in 94.4% of cases tested*

When tested in 72 patients with acute back pain involving muscle spasm, Robaxin induced marked relief in 59, moderate relief in 6, and slight relief in 3 – or an over-all beneficial effect in 94.4%.[1,3,4,6,7] No side effects occurred in 64 of the patients, and only slight side effects in 8. In studies of 129 patients, moderate or negligible side effects occurred in only 6.2%.[1,2,3,4,6,7]

### CLINICAL RESULTS WITH ROBAXIN IN ACUTE BACK PAIN[1,3,4,6,7]

| *ease entity* | *No. of Cases* | *Duration of Treatment* | *Dose per day (divided)* | *Response* | | | | *Side Effects* |
|---|---|---|---|---|---|---|---|---|
| | | | | *Marked* | *Mod.* | *Slight* | *Neg.* | |
| e back pain due to | | | | | | | | |
| uscle spasm secondary sprain | 18 | 2-42 days | 3-6 Gm. | 17 | 1 | 0 | 0 | None, 16;<br>Dizziness, 1;<br>Slight nausea, 1. |
| uscle spasm due to auma | 13 | 1-42 days | 2-6 Gm. | 8 | 1 | 3 | 1 | None, 12;<br>Nervousness, 1. |
| uscle spasm due to erve irritation | 5 | 4-240 days | 2.25-6 Gm | 4 | 1 | 0 | 0 | None, 5. |
| d) uscle spasm secondary discogenic disease nd postoperative rthopedic procedures | 30 | 2-28 days | 1.5-9 Gm. | 24 | 3 | 0 | 3 | None, 25;<br>Dizziness, 1;<br>Lightheadedness, 2<br>Nausea, 2.* |
| ellaneous (bursitis, rticollis, etc.) | 6 | 3-60 days | 4-8 Gm. | 6 | 0 | 0 | 0 | None, 6. |
| TOTAL | 72 | | | 59 | 6 | 3 | 4 | |

*Relieved on reduction



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RESEARCH

# NOW

*a highly specific skeletal muscle relaxant...*

# Robaxin®

Robins

(Methocarbamol Robins)

This new drug—for use in the control of skeletal muscle hyperactivity in many disease states manifesting neuromuscular dysfunction—is available NOW on your prescription at all leading pharmacies. Informational literature is available on request.

*Indications:*

Acute back pain associated with: (a) muscle spasm secondary to sprain; (b) muscle spasm due to trauma; (c) muscle spasm due to nerve irritation; (d) muscle spasm secondary to discogenic disease and postoperative orthopedic procedures; and (e) miscellaneous conditions such as bursitis, torticollis, and related conditions.

*Dosage:*

ADULTS: 2 tablets 4 times a day to 3 tablets 6 times a day.

CHILDREN: Total daily dosage 270 to 335 mg. per 10 pounds of body weight, adjusted for age and weight, and divided into 4 to 6 doses per day.

*Supplied:*

ROBAXIN Tablets (white, scored), each containing methocarbamol [3-(o-methoxyphenoxy)-2-hydroxypropyl-1-carbamate], 0.5 Gm. Bottles of 50.

*References:*

1. Carpenter, E. B.: Publication pending.
2. Carter, C. H.: Personal communication.
3. Forsyth, H. F.: Publication pending.
4. Freund, J.: Personal communication.
5. Morgan, A. M., Truitt, E. B., Jr., and Little, J. M.: J. American Pharm. Assn. 46:374, 1957.
6. Nachman, H. M.: Personal communication.
7. O'Doherty, D.: Publication pending.
8. Truitt, E. B., Jr., and Little, J. M.: J. Pharm. & Exper. Therap. 119:161, 1957.

*A. H. ROBINS CO., INC., Richmond 20, Virginia*

Asian Strain Influenza Vaccine

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In keeping with its tradition of responding to the immediate needs of the medical profession, Lederle announces the availability of "Influenza Virus Vaccine-Monovalent, Type A Asian Strain," produced according to N.I.H. specifications.

The vaccine is specific against the known strains of the so-called "Far East Influenza" virus, and is supplied in a 10 immunization (10 cc.) vial. Every effort will be made to fulfill your requirements.

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*Numerous clinical studies emphasize its efficacy in the reduction and control of serum cholesterol levels*

Physicians are quite aware of the rapidly growing appreciation of the role of dietary lipids in health and disease. Accumulating metabolic studies throughout the world indicate that serum cholesterol levels may be influenced more by the *kind* than by the *amount* of the dietary fat.

Unsaturated fats tend to depress serum cholesterol levels in many patients, whereas saturated fats may have the opposite effect. Medical references on this subject, as well as other findings concerning unsaturated fatty acids in nutrition, may be found in the book, "Vegetable Oils in Nutrition."

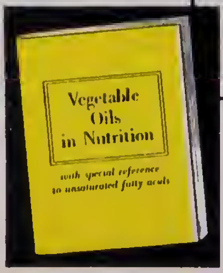
Mazola Corn Oil is an excellent source of *un*saturated fatty acids...85% of its component fatty acids are unsaturated...average values being 55% linoleic acid, 30% oleic acid. Mazola is unadulterated corn oil in its natural form...*not* flavored, *not* blended, *not* hydrogenated. Well tolerated, easily digested, readily absorbed, Mazola is also an excellent carrier for fat soluble vitamins.

Mazola Corn Oil is widely used for salad dressings, in frying, cooking and baking... and thus may be included palatably in great variety as a replacement for part of the daily fat intake.

**COMPARATIVE COMPOSITIONS OF FOOD FATS AND OILS**

| | Fatty Acids as Percentage of Total Acids | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Saturated | | Oleic | | Linoleic | | Linolenic | | Arachidonic | Iodine Value | |
| Fat | Ave. | Range | Ave. | Range | Ave. | Range | Ave. | Range | Ave. | Average | Range |
| Butter | — | 46-48 | — | — | 4.0 | — | 1.2 | — | 0.2 | — | 26-42 |
| Coconut oil | — | 75-88 | — | 5-8 | — | 1.0-2.5 | — | — | — | — | 7-10 |
| ➡ Corn oil | 13 | 11-15 | — | 23-40 | 56 | 46-66 | — | 0.0-0.6 | — | 126 | 113-131 |
| Cottonseed oil | 26 | 21-30 | 27 | 22-36 | 47 | 34-57 | — | — | — | 105 | 90-117 |
| Lard | 43 | — | 46 | — | 10 | 15.6 | 0.5 | — | 0.5 (2.1) | — | 53-77 |
| Linseed oil | — | 6-12 | — | 13-31 | — | 10-27 | — | 30-64 | — | — | 170-204 |
| Margarine | 23 | 15-23 | 62 | 59-77 | 5.8 | 5-11 | — | 0.1-0.9 | 0 | 81 | 74-85 |
| Olive oil | — | 8-16 | — | 53-86 | — | 4-20 | — | — | — | — | 80-88 |
| Peanut oil | 17 | 14-22 | 54 | 44-65 | 29 | 20-37 | — | — | — | 98 | 90-102 |
| Shortening | 25 | 17-45 | 62 | 43-79 | 5 | 3-12 | — | 0.2-0.6 | 0-0.5 | 78 | 59-80 |
| Soybean oil | 15 | 11-18 | 25 | 18-58 | 55 | 28-62 | 5.1 | 0.3-10 | — | 130 | 100-143 |
| Tallow (beef) | 53 | — | 42 | — | 4 | 5.3 | 0.5 | — | 0.5 | — | 40-48 |

**Iodine numbers are an accepted measure of the degree of unsaturation of vegetable oils.**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with special reference to unsaturated fatty acids

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overwhelmingly favored by physicians in rheumatoid arthritis and bronchial asthma

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METICORTEN, 1, 2.5 and 5 mg. white tablets.

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**when your findings include anemia**

# TRINSICON

(Hematinic Concentrate with Intrinsic Factor, Lilly)

**serves a vital function in your total therapy**

*Just 2 Pulvules 'Trinsicon' (daily dose) provide:*

| | |
|---|---|
| *Special Liver-Stomach Concentrate, Lilly (containing Intrinsic Factor)* | *300 mg.* |
| **Vitamin $B_{12}$ with Intrinsic Factor Concentrate, U.S.P.* | *1 U.S.P. unit (oral)* |
| *Vitamin $B_{12}$ Activity Concentrate, N.F.* | *15 mcg.* |
| *Ferrous Sulfate, Anhydrous* | *600 mg.* |
| *Ascorbic Acid* | *150 mg.* |
| *Folic Acid* | *2 mg.* |

Potent 'Trinsicon' offers complete and convenient oral therapy; provides therapeutic quantities of all known hematinic factors. Just two Pulvules 'Trinsicon' daily produce a standard response in the average uncomplicated case of pernicious anemia (and related megaloblastic anemias) and provide at least an average dose of iron for hypochromic anemias, including nutritional deficiency types.

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DELAWARE STATE MEDICAL JOURNAL

*Issued Monthly Under the Supervision of the Publication Committee*
*Owned and Published by the Medical Society of Delaware*

VOLUME 29 OCTOBER, 1957 NUMBER 10

# IMPARTIAL MEDICAL TESTIMONY*

THE HONORABLE EMORY H. NILES**

Mr. Chairman, Ladies and Gentlemen:

It is a great pleasure to come here at your invitation to address you on the subject of Impartial Medical Testimony, for I have long had pleasant associations with the Delaware Bench and Bar, and I am flattered to be invited to address you at this joint meeting.

In addition, I am astonished that on this beautiful Sunday morning in May you can muster such a large number of serious thinkers who have foregone the pleasures of the golf links and the garden to attend this meeting. Moreover, I cannot pass by without a comment on the impression which has been made upon me by this splendid Institute for the alleviation of human suffering. In the cooperation between the two greatest professions, as I like to think, namely, law and medicine, you have already gone far, and if I can assist you in going one step farther I shall be happy.

I cannot, in addressing you here, pretend that in Baltimore we have an established and comprehensive Plan for Impartial Medical Testimony in full operation. The subject has been under discussion for three or four years, and our Plan has been tried out in a number of cases. There has been, however some opposition to it, and while I believe that the Plan will grow and be fully accepted within a reasonable time, I must confess that as of the present the situation could be best described as an emergence from the experimental stage and an entry into the stage of education and acceptance by the Bar.

## II.

As a background for my remarks, I begin with a re-take of that hallowed courtroom drama with which we are all familiar — a drama in two acts:

ACT 1. Q. Doctor A, as expert for the plaintiff, to what degree, in your opinion, is the plaintiff disabled?

A. He is totally and permanently disabled.

ACT 2. Q. Doctor B, as expert for the defendant, to what degree, in your opinion, is the plaintiff disabled?

A. He is not disabled at all. He could work if he wanted to. He is a malingerer and a loafer.

Expert opinions do not always diverge to the extent of 100%. But opinions expressing differences as great as between 30% and 70%; 15% and 85%; or "substantial" and "minimal" are heard every day.

What is the reason? There are several reasons. Everyone present knows them as well as I do. (1) Medicine is not an exact science, and honest differences of opinion are normal. (2) Every doctor, like every lawyer, has a constitutional or emotional bias which predisposes him in favor of one side or another. (3) Many doctors by their professional activities in testifying for plaintiffs or for defendants have acquired views modified by their professional experience.

But the great and controlling reason is that, in our adversary procedure, there is a tremendous and apparently irrestible urge in a witness to testify for the side that calls him to resolve doubts in favor of that side, to exaggerate, it may be, in favor of that side, and to absolve one's conscience by "leaving it to the jury".

---

* Presented at a joint meeting of the Delaware State Bar Association and the Medical Society of Delaware at the Alfred I. duPont Institute, May 12, 1957.

** Chief Judge of the Supreme Bench of Baltimore City.

On a lower plane, crass financial interest colors the testimony of a doctor who knows that his bill will not be paid unless the plaintiff recovers. On the lowest plane, the expert has a financial stake in the verdict, and is in fact on a contingent fee.

I hasten to disclaim any intention of attacking the medical profession. Its standards of conduct and discipline are higher, if anything, than those of the lawyer. But just as we lawyers have unworthy representatives in our ranks, so have the doctors. And it is our system of inquiry into truth, rather than the abuses of which some doctors and lawyers are guilty, which I wish to examine and if possible improve.

Nor do I attack the adversary system as such. It is a good system, and in many ways the best system yet devised for determining disputes. But like many "isms" it is not a hard, logical and unbending result of dialectical necessity. It is a practical affair, and it can be improved. As instances of improvements in recent years, I cite two great developments which have grown up during the professional lives of most of us here—Discovery and Pre-trial. Both have demonstrated that they have great value; and both, in theory, are diametrically opposed to the sharp and unmodified adversary theory.

Added to the underlying difficulty, is the distaste which many of our best physicians feel for court proceedings. I live in a great medical center, and I know that while it is easy to get medical expert witnesses to testify for one side or the other, I know also that it is hard to get the *best* doctors to do so. Doctors are professional men of responsibility and integrity; many of them simply will not subject themselves to the prodding of their own side to exaggerate, and to the imputation of the other side that they are coloring their testimony to promote the financial interests of their patients or themselves. By our system of partisan expert witnesses we have alienated and deprived ourselves of the services of the best, and accepted and at the same time criticized, and been shocked by, the performances of the worst.

## III.

So much, then, for the general picture. Those of you who have read Judge David W. Peck's book about what he and his colleagues have done in New York, know that a valuable work has been done there. Judge Peck's answer to the basic problem was to devise a system of Neutral or Impartial Medical Experts. My answer is the same.

The only difference between Judge Peck's system in New York and ours in Baltimore is in method. There is a more basic difference between both these Plans on the one hand and the Minnesota Plan on the other. And I presume upon your time today because I believe that it is far easier, and may in the end be far better, to do what we have done in Baltimore, than what they have done in either New York or Minnesota. I should therefore like to address myself to two matters in the limited time which I have. The first is the difference between the Baltimore Plan and other Plans. The second is a simple outline of how the Baltimore Plan actually works.

There are several ways of approach to the whole problem. Passing over for the moment the question of the power of the court to do anything, the first question is whether we are thinking of a system (a) of adducing reliable evidence, or (b) of disciplining improper conduct in either the legal or the medical profession. Minnesota proceeds, I believe, on the disciplinary theory; New York and Baltimore proceed on the impartial evidence theory. In this respect I believe that New York and Baltimore have the better side, for the Minnesota Plan presupposes that there has already been evil done, and merely tries to prevent more evil in the future. It allows one horse to be stolen from the stable before the door is locked.

The second and greatest difference between New York and Baltimore is that the Baltimore Plan does not require out-

## DEPOSIT OF EXPERT'S FEE

| | | |
|---|---|---|
| ............................................................<br>............................................................<br>*Plaintiff* | | IN THE |
| vs. | } | ...........................................Court<br>OF BALTIMORE CITY |
| ............................................................<br>............................................................<br>*Defendant* | | |

Mr. Clerk:

Please deposit the sum of $........................., delivered to you herewith, in the within case subject to the order of the Court.

........................................................

*Attorney for* ........................

Dated:

..........................., 19....

## PAYMENT OF EXPERT'S FEE

ORDER

Mr. Clerk:

Please pay to Dr. ..........................................., whose address is ..................................................., the sum of $................, heretofore deposited on......................................., 19...., in this cause.

........................................................

*Judge*

*(Form Used for Deposit of Experts' Fee)*

side money. Although as Judge Peck's published report indicates, the amount required was not great, nevertheless, some outside persons had to be educated and interested enough to put up an initial fund to try the experiment. Now when it has proved successful, the cost is borne by the taxpayers generally. Under our Plan the cost is borne by the litigants, like all the other costs of litigation.

The third difference between the New York and Baltimore Plans is that in New York the impartial expert is appointed by a system of rotation, operated impersonally, anonymously and without choice by judge or counsel. Under our system, the judge and counsel for both sides have as a practical matter an opportunity to discuss the available experts whose names are on a list chosen by the medical society, and to agree on one satisfactory to both sides. This, in a period of transition and education, seems to me to be important.

The fourth difference, if it is in fact a difference, is that no legislative or executive action was needed. We have no new statutes, no new offices, no new jobs. We do not even need new rules of court. All we need is the cooperation of the medical profession, which we have, and the support of the legal profession, both on the bench and at the bar.

## IV.

I am of course not familiar with the details of the law of the various States, but I do not believe that such differences are important. Maryland is a common law state, where Law and Equity have not been consolidated; where Code Pleading is anathema; but where, since 1634, there has been a steady development of law which sometimes has been behind and sometimes has been ahead of the progress made in other States and in the Federal Courts. At the present time I should say, on the basis of Mr. Chief Justice Vanderbilt's maps with their black and dotted areas, that we are considerably ahead of the average. But for the power of the Court to appoint experts of its own, we delve into that benighted period of the early 1900's, late in the era of hidebound procedural technicality and muzzled judges.

In 1908, in the case of United Railways & Electric Company vs. Cloman, 107 Md. 681, the Court of Appeals of Maryland, without any modern rule upon the subject, required a plaintiff to submit to a physical examination. The plaintiff objected to being examined by the defendant's doctor. The Court of Appeals said:

> " * * * Unless consent is given by the plaintiff to have the examination made by physicians of the defendant, the safe course is for the Court to name some disinterested physician or physicians to make such examination, but the Court and jury ought not to be required to rely on the testimony of experts employed or produced by the plaintiff, or that of the plaintiff himself when there is any real question about the correctness of the evidence offered by a plaintiff in reference to the extent of his injuries."

In 1944, in Purdom vs. Lilly, 182 Md. 612, after the adoption of Discovery Rules in Maryland, an application was made for the Court to appoint two doctors to determine the mental capacity of one of the parties, in accordance with a rule providing for such examination. Judge Bailey in rendering the opinion of the court, said:

> "This rule embodies the existing practice in this State. The inherent power of the trial court to order a medical examination of a party whenever his condition is relevant to the action is well established. * * *
>
> "We do not feel that is was incumbent upon the chancellor in the present case to name the physician suggested by the appellant, but we are of the opinion that, upon the petition presented to him, he should have named two disinterested physicians of his own choosing to make the mental examination of the alleged incompetent, so that the appellant's contention with respect to the mental condition of Mrs. Lilly could be fairly presented to the jury, in the event that the examination by the disinterested doctors tended to prove her incompetency. * * * "

The important points of these cases are, not only that the court has the inherent right to appoint expert witnesses in appropriate cases, but further, that those experts may be *of its own choosing.*

I have not examined the cases from other States, but I would suggest that it is highly probable that similar decisions can be found in most of them.

That the problem of impartial expert testimony has been widely considered is evidenced by the action of the Commissioners for Uniform State Laws, who about 1936 prepared the "Uniform Expert Testimony Act" which provided that the Court should have power to appoint experts of its own choosing. This Act, the name of which was later changed to the "Model" Act, was approved by the American Bar Association in 1938. Thereafter the American Law Institute in its Model Code of Evidence adopted a similar provision. In its later, and present form of "Model Rules of Evidence," the same provision has been retained (Rules 401-410).

I have not had an opportunitly to examine the literature of this subject in detail or the decisions of every State. The case of Bowing vs. Delaware Paper Company, 188 A.2 769, referring to 40 Del. L. ch. 240 (1935) and your Supreme Court Rule 35 seem to give the Delaware courts ample power. Text writers also support the view which I take.

The important point for us at the moment, however, is that, without any text writer or Model Act, or Uniform Act, or Code or any other authorization, a court on traditional and accepted principles has the power in a proper case to select and appoint an expert to advise the Court or the jury upon matters relevant to the issue in a case before it.

## V.

The Baltimore Plan was devised by a joint committee of the Maryland and Baltimore City Bar Associations, and the State Medical Society, which bears the name of the Medical & Chirurgical Faculty of Maryland. Our Plan is simplicity itself, although the meetings and explanations as between the two professions required a number of conferences, and proceeded over several months.

At the request of the legal associations the Medical Society appointed twenty-one panels of doctors who were, in the eyes of the doctors themselves, eminent practitioners in the various specialties into which medicine is divided. The specification laid down by the lawyers was a wholly informal one. The lawyers simply said they wanted physicians named to the panels whom the doctors themselves would consult in cases involving members of their own families; whose judgment and standing in the medical community was such as to put them above suspicion of either favoritism or incompetence. As a result the following panels were appointed, consisting of three doctors each:

Allergy
Anesthetics
Blood
Cancer
Cardiology
Chest Diseases
Dermatology
Genito-Urinary Diseases
Gynecology
Internal Medicine
Neural Surgery
Neuropsychiatry
Obstetrics
Ophthalmology
Orthopedic Surgery
Otolaryngology
Pathology
Pediatrics
Psychiatry
Radiology
Surgery

The names of the doctors composing the panels, while not secret, were not published.

When a proper case arises for the appointment of an impartial witness, the judge, usually during the pre-trial conference, telephones to the office of the secretary of the Medical Society and asks the names of the doctors on the panel of, for example, radiology. The secretary gives the names to the judge, and the judge makes these names known to the lawyers. At the same time he asks the lawyers if they have objections to any of the three who have been named. If there is objection, the judge, although not compelled to do so, eliminates the doctor so objected to, and proceeds to appoint one of the others. The selection can usually be made by agreement, and agreement is important for obvious practical reasons.

The judge thereupon communicates with the offices of the doctor (who has already, by appointment to the panel, expressed his willingness to act) and informs the doctor or doctor's secretary that the court has appointed the doctor as an impartial expert, and that a named patient will appear at the doctor's office at a time to be arranged by one of the lawyers. The judge, of course, in the pre-trial conference has charged one of the lawyers with the duty of making appropriate arrangements as to time and place. The judge also requests the doctor to send his report in triplicate to the judge, and upon its arrival he immediately sends one copy to each side, and retains one for his records.

With such great simplicity does the system work, but two important points have not been covered. The first is how the matter starts, and the second is who pays the bill. Experts are not appointed in every case, but only when requested by one side or the other. It is not contemplated that the appointment of such an expert shall be a routine matter, but that it shall be done only in extraordinary cases, where there is great divergence between medical reports or in other special circumstances.

Although we have no formal system of pre-trial in Baltimore, it is a simple matter, when a wide difference of opinion in medical testimony has been disclosed by Discovery procedures, for one lawyer to state to his opponent that he intends to ask for an impartial witness, and that he will do so before court, in the judge's chambers, at a certain time. For the record, the lawyer desiring the appointment prepares a simple petition requesting it, and if the appointment is made, the judge signs an equally simple order in the following form:

*ORDER*

It is ORDERED by the Superior Court of Baltimore City that....... ....be examined by Dr. ........... at such time and place as agreed upon by counsel. A fee for said examination is to be deposited by............ in the amount of $.......... with the Clerk of the Court. Counsel are to furnish Dr. ...............with the following:

If in a given case the attorneys desire formal notice of the application, it can be given in the usual method adopted for other pleadings relating to interlocutory applications.

The whole matter is discretionary with each judge. Some judges believe that the system is excellent, and favor the appointment of neutral experts; some judges are not so convinced, and believe that the old-fashioned system of allowing the parties to call their own experts is better. The bar is also divided on the subject.

The second problem is the question of who is going to pay the bill. A short but somewhat inaccurate answer to this question is that the person who wants the examination made pays the bill. This in practice is easily arranged. Before signing the order of appointment the judge simply asks the attorney requesting the appointment if he will guarantee the bill, or deposit a sufficient amount with the Clerk to pay the bill. Since the attorney is asking for the examination and knows that it will involve some expense, he is prepared to say "Yes"; and the Court, depending upon circumstances, either accepts a letter of guaranty filed by the Clerk, or requires a deposit of an appropriate sum with the Clerk. No difficulty with forms is encountered here, for the attorney making the deposit simply signs a short order to the Clerk, as follows:

"Mr. Clerk: Please deposit the sum of $........ delivered to you here-

> with in the within case, subject to the order of the Court."

There is, however, no universal rule as to who in the end shall bear the cost. The matter is usually left by agreement to the discretion of the Court.

One of the essentials in the whole system is that the doctor selected know that he is not being retained by one side or the other, but is being requested to advise the Court itself. If the doctor knew who was paying the bill it might affect his judgment, although I think that doubtful. In any event, however, it is better for both sides to be certain that the doctor does not know who is paying the bill. When the bill comes, however, and it usually accompanies the doctor's report, the judge simply signs an order, as follows:

> "Mr. Clerk: Please pay to Dr. .... ......, whose address is..........., the sum of $..... from the sum heretofore deposited in this case.
>
> .........................,
> Judge."

The obvious question, of course, arises as to how much the doctor's bill will be. While this might cause great difficulties, it has not done so so far. If the matter arises the doctor is asked in the initial communication with him about how much he thinks the prospective examination will cost, and when he has named a figure, the amount to be deposited with the Clerk is fixed so as to cover that amount. Usually, however, both the lawyers and the judge know about what the examination will cost, and it is seldom that the deposit required is more than $100. Conversations with judges in New York indicate that they too have not had difficulty in the amount of doctors' fees, although, as you know, their method of paying them is entirely different. The specialists most frequently involved are orthopedic surgeons, neuro-surgeons and general surgeons, and their charges are not difficult to anticipate. With respect to psychiatrists there is more difficulty, for the problems with which they deal are more obscure, and it is more difficult to foretell the amount of time which they will be required to expend in arriving at conclusions.

The important point that I wish to make here is that it is not necessary to devise a complicated system of administration, legal, clerical, or financial, to put the system into effect or to make it work.

## VI.

What have been the results so far? While, as I have said, the Plan has not been used by all the judges, nor is it favored by some lawyers, it has been tried in perhaps 25 cases and, as far as I am able to tell (although I am a biased witness) the Plan has worked well. Although to certain plaintiffs' lawyers the Plan seems to be a defendant's Plan, it has not turned out to be so. In at least one case of which I know, a report by the impartial physician was far more favorable to the plaintiff than to the defendant who had asked for it, with a resultant settlement far greater than the defendant had been previously willing to offer. In another case in which the neutral report did not bring about a settlement, the doctor was required to testify; and although his appointment had been requested by the defendant, his testimony in court was far more favorable to the plaintiff than to the defendant. In some cases a claim made by a plaintiff of a great injury has been regarded by the neutral as excessive. The important thing is that both for the lawyers and for the court, including the jury, a means has been opened of obtaining evidence as to injuries which is truly impartial. No one would contend that the neutral or impartial witness is infallible, but neither, I think, would an open-minded observer deny that the introduction of such impartial testimony into the trial is an improvement upon the situation that prevails without it.

Some opposition to the Plan has arisen from a misunderstanding as to the status of a court-appointed expert when actually testifying before the jury. Let me emphasize that it is not intended, and is not in fact the case, that the appointment of an expert witness by the court prevents or precludes either party from calling as many other experts as he desires; nor is any party prevented from cross-examining the expert appointed by the court in the same manner as any other expert may be cross-examined. It is expected, however, that the fact of the appointment by the court shall be made known to the jury, and in this respect the court-appointed expert is on the same basis as the other experts, for the jury always knows which side has called a given witness.

There is fear among some attorneys that the appointment of an expert witness by the court will "invade the province of the jury" and may make such a witness a "dictator" who may deprive a deserving litigant of his rights. It may be that the jury will give more weight to the testimony of an impartial expert appointed by the court than to the testimony of a witness called by one of the partisans, but I cannot believe that such an effect would be harmful when it is of the essence of the matter that the impartial expert is in the top ranks of his profession, and that he is chosen by the court and the medical profession itself solely on the basis of his ability to tell the jury the medical truth so far as it can be ascertained.

## VII.

As I have said, our Plan has not yet reached the stage at which we can look back and suggest desirable changes on the basis of broad experience. A number of points come to mind in which we may be able to improve the system. One of these is the enlargement of our panels of physicians. At the present time only three names appear in each specialty. This number seems inadequate for some specialties, such as orthopedic surgery, and perhaps more than adequate for other specialties, such as dermatology. Another possibility is the appointment of more than one expert in a given case. "Two heads are better than one" in many cases, even though in other cases "too many cooks spoil the broth". Another possibility is the joint examination made by a neutral in the presence of experts for the opposing sides; in other cases in my experience this has proved a useful device. One point on which the doctors do not seem to be uniform in their practice has to do with the amount of data which they require before making their examination. Some doctors wish to see all the reports that have been made to date; some doctors prefer to see none, and to make their own evaluations without reference to what other doctors have said. So far we have left this matter to the discretion of the individual physician appointed by the court.

The main problem of the future seems to me to be one of education of both bench and bar. It has taken a long time to educate the bench and bar on the two subjects that I mentioned previously, namely, Discovery and Pre-trial. But just as in those cases their actual use has proved of great benefit after the lawyers and the judges really learned what could be done with them, so in the case of Impartial Medical Testimony I believe that time and increased experience with it will result in great benefits, and will contribute in substantial measure to the solution of one of the most important problems which we have today in our courts.

# THE COSMETIC CLOSURE OF SIMPLE LACERATIONS

James T. Metzger, M.D.*

At some time or other almost everyone gets cut. Fortunately most of these wounds are superficial and do not involve important functional structures. In this sense they might be called simple lacerations yet their repair often yields a result unsatisfactory to patient and surgeon. No one is pleased to wear a visible scar and frequently where liability is a question, the residual cosmetic defect becomes a matter of economic importance.

A check of insurance claim statistics[1, 2] reveals that almost without exception a claim for permanent disfigurement is added to that portion of the action involving medical expense and punitive settlement. Records of the State Accident Board and the Superior Court show that a large percentage of these claims actually come to suit, hearing or trial. It is not uncommon for an action involving $15,000 to center largely around permanent disfigurement following the repair of a simple laceration.

For legal purposes it has been helpful to classify cosmetic disability. This is an effort to translate a basically subjective complaint into objective terms. Scars of the face can be considered as: 1.) the most conspicuous feature of the face, 2.) noted as a prominent, but secondary, feature, and 3.) not noted at conversational distance. An arbitrary distance of two feet is considered "conversational distance" and a good cosmetic result should yield a scar that is not seen at this distance.

The study of scars and the causes for their relative conspicuousness reveals that contour defects are much more visible than surface defects, a perfectly straight scar is more obvious than an irregular scar, and scars opposing the dynamic facial lines are more obvious than ones lying within or parallel to these lines. Figure 1.

Although most simple lacerations seem to be caused by a sharp instrument, such as a piece of glass or sharp stone, they often result as much from the concommitant blow which tears and bruises the skin against the underlying bone. No laceration can compare in sharpness to a surgical wound, and the associated bruising with its hemorrhage and edema is a fundamental contributor to the fibrosis and scarring which may result. The bruising may not be noted at the time of first examination and treatment, so that the poor quality of the resultant scar may come as a considerable surprise to the surgeon. Closure of a laceration without proper regard for these factors cannot, except by good fortune, yield a scar that is unnoticed at conversational distance.

Successful management of a laceration depends upon careful integration of the four basic phases common to surgical procedures: the patient, the wound, the technique, and the aftercare.

## The Patient

One can only deplore the "hold-and-holler" methods so common to our emergency rooms. An experience in one can be traumatic to patient, surgeon and parent. Children may be classified roughly into the age of no fear (0 to 2 years), age of fear and unreason (2 to 5 years), and the age of reason (5 years and up). Every patient is naturally apprehensive and the child is no exception. The surgeon is in a position to allay this fear through the free use of sedative drugs. It is safe to give Demerol in parenteral dosages of one milligram per pound of body weight. Morphine has no

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* From the Department of Surgery (Plastic, Maxillofacial and Reconstructive), The Memorial Hospital and the Eugene duPont Convalescent Memorial Hospital, Wilmington, Delaware.

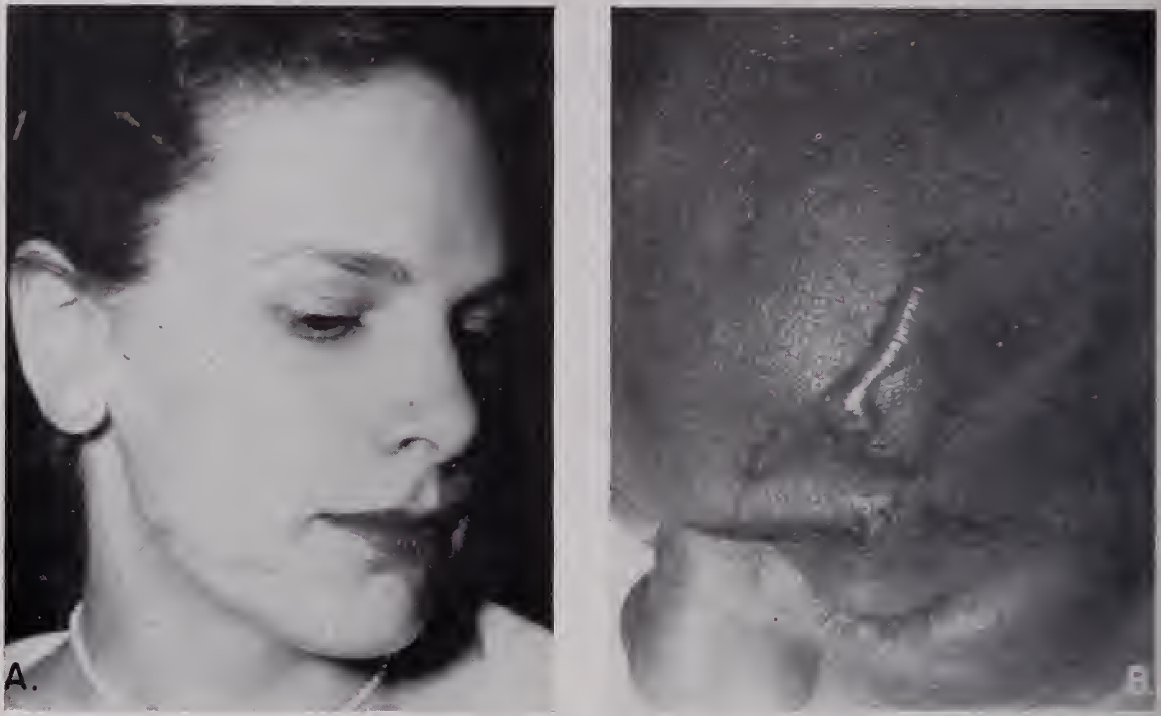

FIGURE 1
A. When the wound crosses major skin folds, a poor scar will always result following simple suture.
B. Hypertrophic scar on the forehead following a laceration which has interrupted secondary lines of skin tension.

peer in its ability to relieve pain and anxiety and its use is equally safe although dosage calculations are somewhat more difficult. A dose of one-tenth that calculated for Demerol is satisfactory. (Demerol 100 mg. is the equivalent of morphine 10 mg.; Demerol 25 mg. equals morphine 3 mg.) Barbiturates are unsatisfactory because slight over-sedation will produce sleep which turns to raving hysteria as the operation begins. It is easy to reach the excitement stage of anesthesia with the barbiturate drugs which, while rendering the patient amnesic for the procedure, makes it extremely difficult if not impossible for the surgeon. Under-sedation with barbiturates produces only the mildest form of relaxation, usually not sufficient for the task at hand. Of course one must avoid the use of any of these agents in the presence or incipience of more serious injury. Recent work by Sadove[3] using Phenergan suggests another satisfactory method of producing a quiescent state.

After careful and thorough determination that no injury exists beyond the simple laceration itself, adequate parenteral sedation should be given. In 20 to 40 minutes, time more than regained in speed and comfort, the patient will be calm and relaxed. Parents are permitted to remain with the patient during this period. In age groups under five years, it is always well to wrap the patient firmly in a sheet which extends from below the knees to above the neck. The surgeon can prepare his equipment, always with his back to the patient so that no instruments, particularly syringes, are seen.

When the wound is on the face, it is very unwise to use a strong surgical spotlight because this has been a primary factor in frightening and irritating the patient. Ordinarily room ceiling light is satisfactory for the closure of most wounds. An occlusive facial drape is also irritating and unnecessary.

Parents, friends and relatives must be excluded from the operating room.

Infiltration of the local anesthetic can be done with little or no pain through the wound itself and should not be preceded by phrases referring to bee stings or mosquito bites. The patient can be advised that the wound is going to be washed out and that it will feel sharp as this is being done. A squirt or two of the anesthetic will confirm the washing-out concept and a bit of sharpness is also explained as the infiltration is completed. From then on quiet conversation with the patient will allow the surgeon to operate effectively, and for a considerable length of time.

### The Wound

Superficial wounds and simple lacerations do not ordinarily become infected. The skin and immediate subcutaneous tissue do not provide an ideal culture medium and natural vascularity allows for maximum host resistance to bacterial growth. Bruising and subsequent tissue necrosis may, however, provide a better culture medium. Healing of a simple laceration is therefore a particular exercise in wound healing, the concepts of which have been lately revised by Gilman and Penn[4]. Contrary to generally held opinions, the first signs of repair are detected in the epidermis and not in the connective tissues. The regenerating epithelium bridges the wound first, the epidermis at the wound edges will always become inverted and grow into the incision making the healing wound initially V-shaped. This may throw light on the appearance of hypertrophic scars, sebaceous cysts and other complications in the healed skin wounds.

Scrapes, scratches and abrasions offer a different problem. If the tissue damage is confined to superficial second degree loss, the healing will be rapid and the scarring minimal, although annoying pigmentation may occur. If the scratch has produced deeper second degree, or whole thickness loss, it must then be treated as a complete laceration, for the scarring will be obvious.

The situation of the wound is of paramount importance. On the trunk or extremities the laws of skin folds and tension are valid, but on the face they become the first consideration. The major folds of expression are shown in figure 4, A, left side, and the secondary lines of skin tension on the right. Wounds crossing the major lines must, by definition, leave prominent scars (Figure 1, A). Wounds failing to cross the major lines but lying adversely to the lines of skin tension will produce a still unsatisfactory result (Figure 1, B and 2, A).

Scars lying against normal skin folds remain conspicuous primarily because they fail to blend with the normal dynamics of the face and secondarily because whatever

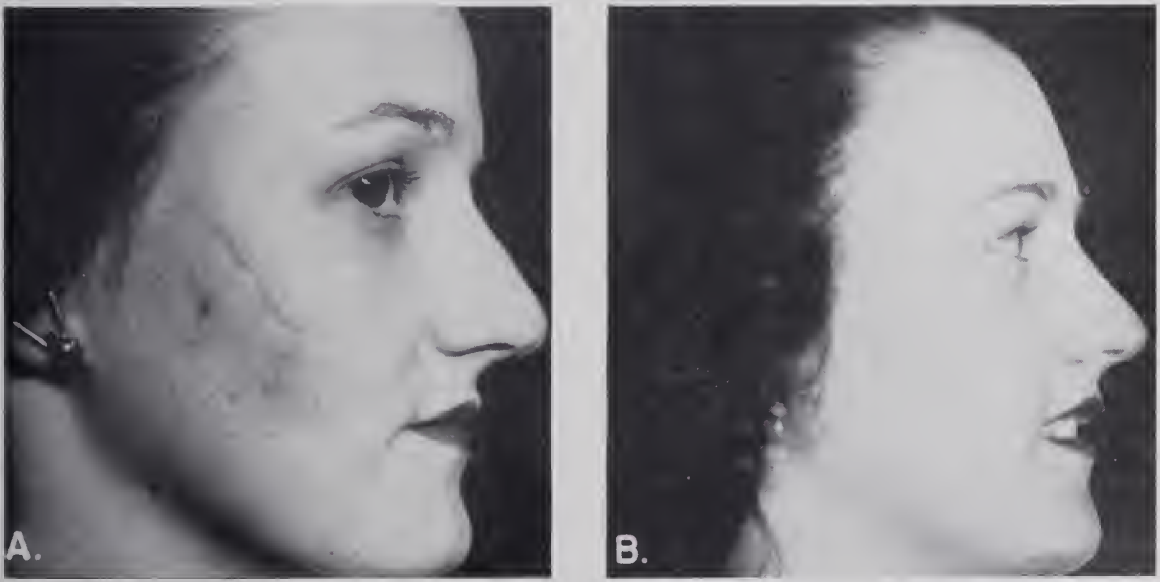

Figure 2

A. A scar of the cheek following simple suture of a laceration which has crossed secondary skin lines.
B. Result of revision of the same scar by Z-plasty.

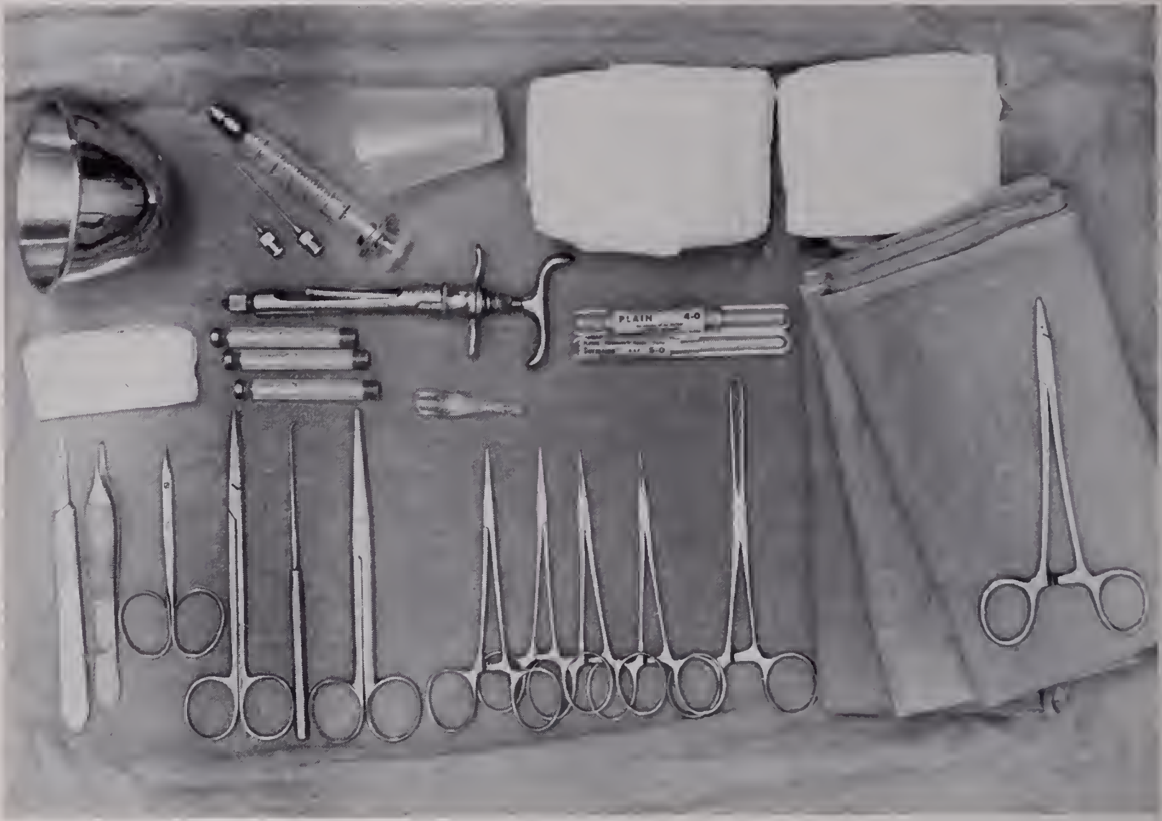

FIGURE 3

A. Typical emergency room tray showing the instruments essential for closure of a simple laceration to obtain the best cosmetic result.

contractility they may exhibit opposes diametrically the adynamic repose of the facial skin.

Successful closure of simple lacerations demands an appreciation of these factors and the development of a technique that will counteract or minimize these undesirable features.

### THE TECHNIQUE

No one can do a good job without reasonably good equipment. Figure 3 shows a typical emergency room tray with the basic knife, scissors and skin hook. For convenience and comfort when tying suture material alone, and this tray is designed for use by the surgeon working without assistance, a Ferris Smith fine needle holder is included as shown at the far right. Other, or different instruments may be used as a matter of individual taste.

A medicine glass, syringe and needles are shown for use with procaine (Novocaine, Winthrop). It is sometimes felt that the degree of anesthesia obtained with procaine is proportional to the strength of the solution and the amount injected. Fortunately one can have the same degree of anesthesia with 0.1% procaine as with 2%. Failures in the use of injectable local agents are due primarily to the rapidity with which they are carried away from the operative field by the abundant local circulation. In some areas the vascular bed is so generous, as in the scalp and certain parts of the face, that local infiltration is almost equivalent to intravenous injection. Distention of the parts by a large amount of local is the usual method by which this is reduced. It is, however, far more effective to add a vasoconstrictor which will hold the anesthetic in place and in addition, greatly reduce the hemorrhage as the wound is repaired.

It is therefore important that the local anesthetic be augmented by the addition of parenteral (not topical) epinephrine (Adrenalin, Parke-Davis), 15 drops to the ounce delivered through a number 24 gauge hypodermic needle. When this solution is mixed and injected a profound anesthetic with great reduction in capillary bleeding will be obtained. The total amount of the local agent can be reduced to 2 to 5 cc. for even fairly large wounds. The total amount need never exceed 10 cc.

Sensitivity reactions to procaine alone are almost unknown. Most syncopal reactions are due to injection of an excessive amount of the procaine-epinephrine solution. Small amounts, 2 to 5 cc., can be used with impunity even in elderly and hypertensive patients. The resultant vasoconstriction releases the drugs very slowly into the general circulation. Errors in this regard are from using too large a volume of the agent and injecting it too rapidly.

Recently lidocaine (Xylocaine, Astra) has gained wide and justifiable popularity. Other effective agents are also available. Giving profound anesthesia with great speed and less toxicity, lidocaine can be purchased in the dental ampule*. Each ampule contains 2 cc. of lidocaine with epinephrine 1:100,000. Use of the dental syringe assures a sharp needle, and the 2cc. ampule acts as a measurement control and tends to automatically prevent the use of excessive amounts of the drug.

Since all lacerations are complicated by bruising which leads to hemorrhage, edema, fibrosis and scarring, it is important that each wound be generously excised. This is true even though the wound may appear on gross inspection to be sharp and clean. This will convert a traumatic wound into a surgical wound. The single exception to this principle of debridement by excision is in the management of eyelid wounds[5]. Here no tissue can be sacrificed. The loose areolar character of the tissue allows for much edema with little or no fibrosis. Debridement may result in serious impairment of function which may be difficult to correct as a secondary procedure.

A study of the major and secondary skin lines (Figure 4) reveals their general dynamics. When the wound violates these lines, a good result cannot be obtained[6].

Fortunately the application of the principle of the Z-plasty can convert a tragic accident into a pleasing result. This simple technique is well described in many texts[7, 8, 9, 10]. It depends upon the transposition of elastic tissue across an inelastic, or as with lacerations, relatively inelastic area. When correctly applied to the simple laceration one should be able to achieve a scar that cannot be seen at conversational distance. (Figures 2 and 5).

As seen in figure 4, B the Z-plasty is planned in *reverse*. The resultant line is visualized so that it will lie in, or parallel to, a major skin fold. Appropriate flaps are then marked and sharply cut so that this visualized resultant is produced. The entire wound is excised and discarded, and the adjacent area gently undermined. Transposition of the flaps will produce the result seen in figures 2 and 5. The Z can be cut in series to accomodate longer wounds (Figure 4, B).

Suture material is largely a matter of individual choice and contributes little to the success or failure of the closure. One standard technique calls for subcuticular closure with 4-0 plain surgical gut and skin closure with a-traumatic 5-0 nylon. Nylon has the advantage of slight elasticity. When tied with proper tension it will allow for enough stretching to accomodate mild postoperative edema without leaving unpleasant suture marks. A simple *dry* dressing is applied to avoid the maceration of a grease gauze.

### THE AFTERCARE

The patient does not usually become impatient, the surgeon frequently does. Resolution and maturation of a surgical wound is not complete for many months, and no wound has much strength in less than six weeks[10]. If one keeps this firmly in mind and plans the aftercare along these lines, a good result will be much more certain. One can remove skin sutures early only if

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* Lidocaine hydrochloride (Xylocaine, Astra): Obtainable in dental ampules from Climax Dental Laboratories, 1105 Madison, Wilmington, Delaware.

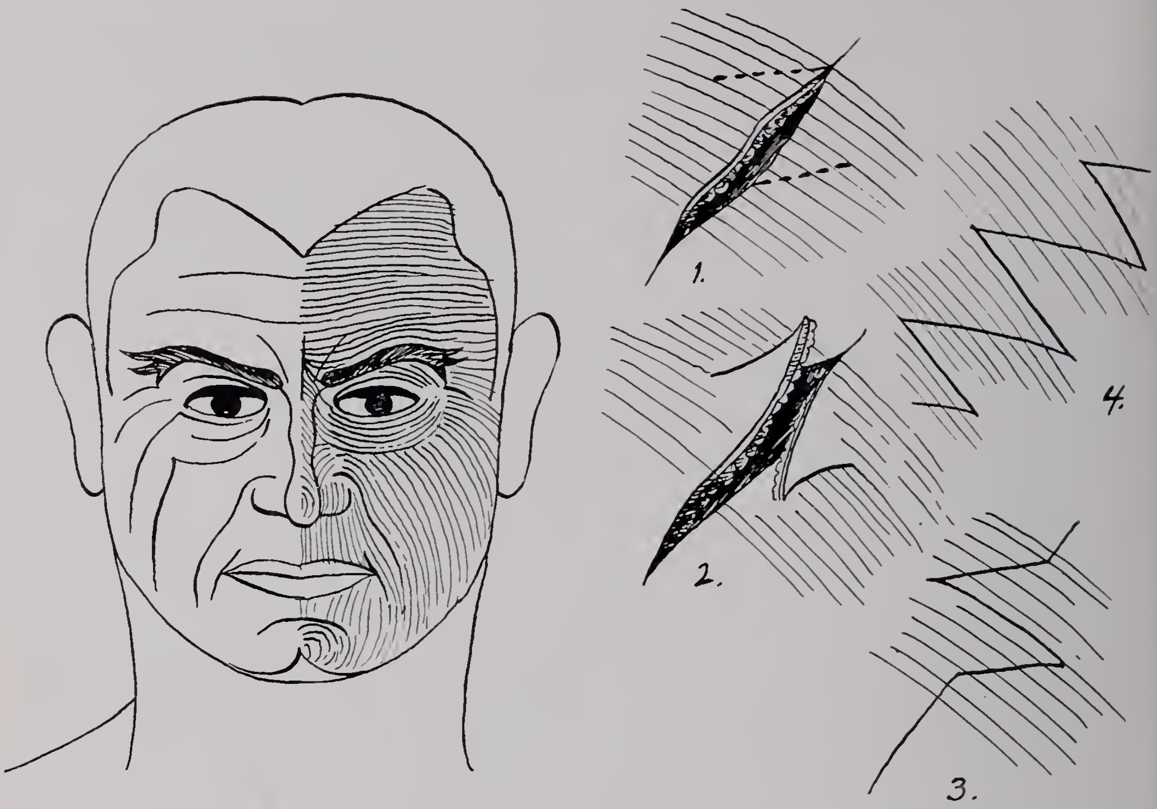

FIGURE 4

A. Diamramatic representation of major skin folds, left and the secondary lines of skin tension right. B. Demonstration of the technique used in transposing an adversely situated laceration so that it will agree with normal skin lines.

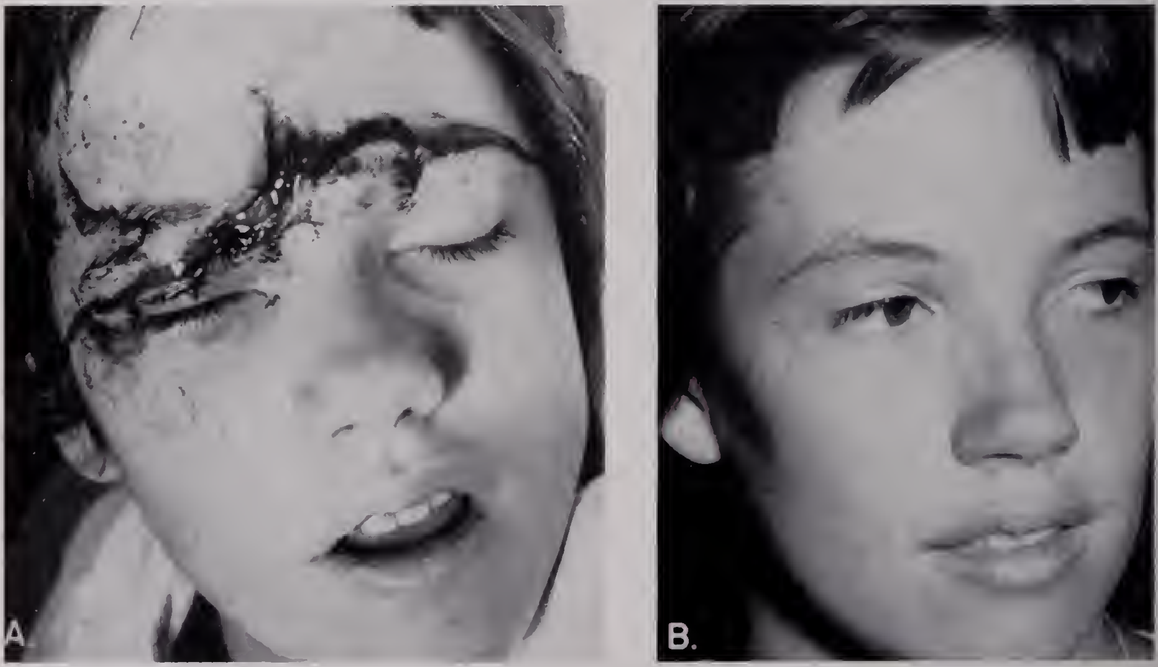

FIGURE 5

A. A laceration which has crossed major lines at the forehead, glabella, right upper eyelid, and outer canthus region. Repair by multiple Z-plasties was done. B. The scar at the outer canthus region, which was not treated by Z-plasty, remains as the most conspicuous feature.

some provision is made to support the wound until it is strong enough to resist stretching through motion.

Among plastic surgeons it has become almost routine to remove skin sutures on the third post-operative day, and to apply gauze splints across the wounds. These are glued in place with collodion, U.S.P., *not* flexible collodion*. This simple dressing acts as a localized plaster cast and prevents motion. The wound is supported just as firmly as if the sutures were still in place. These collodion strips are changed by the surgeon every third or fourth day for three weeks. The patient is then instructed in the application of the strips and does it at home until the entire six week period is up. Failure of the patient to cooperate is almost unknown. If one works with, rather than on, the patient a happy relation is established which will help yield a good result.

## Summary

A review of court and industrial records reveals the tremendous economic impact of posttraumatic scars. An objective classification of scars is given. A study of the causes of poor scars indicates that the concommitant bruising together with an interruption of the lines of normal skin tension are the prime factors.

Production of an excellent result depends upon the integration of four basic phases: the patient, the wound, the technique, and the aftercare. Each is considered in detail.

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* Collodion, U.S.P.: Baker and Adamson, General Chemical Division, Allied Chemical and Dye Corporation, New York. Obtainable from John G. Merkel and Sons, 8th and Union, Wilmington, Delaware.

# TEMPORAL ARTERITIS
# TREATED WITH PREDNISOLONE

JOHN H. BENGE, M.D. and ROBERT W. FRELICK, M.D.

Temporal arteritis is not common. In 1951 Cardwell[1] was able to collect 151 cases from the literature. The arteritis consists of an inflammation of all the layers of the temporal artery with associated local and systemic symptoms[2]. It is usually found in persons over fifty years of age but has been reported in one patient as young as twenty-two[3]. The local symptoms consist of severe headaches which frequently radiate to the teeth, arms, jaw, zygoma and neck. Painful mastication is common. The symptoms are usually unilateral. The opposite side may become involved years later. The temporal artery is locally tender and swollen. The systemic reaction includes mild fever, malaise, anorexia and weakness. Frequently there is a mild leucocytosis but no eosinophilia. The course is usually self-limited (six to twelve months). It may have a mortality rate as high as 20%[4], usually secondary to involvement of the carotid arteries. A spread to the retinal arteries may lead to retrobulbar pain and blindness.

Pathologically, all layers of the artery are included. The process may be segmental. The adventitia is initially infiltrated with inflammatory cells which spread widely, often with perivascular cuffing. Patchy necrosis of the media is present with foreign-body giant cells, proliferation of fibrous tissue, and granulomatous changes with narrowing of the arterial lumen. Thrombi may be present. The changes may simulate those of periarteritis nodosum (polyarteritis).

The etiology is not clear. Wolff[5] noted the presence of dental infections in half of the patients in his series. Others have incriminated sensitivity phenomena and degenerative diseases as factors of importance.

The usual treatment consists of resection of a segment of the temporal artery. In one report[4] where the process simulated a carotid body tumor, the carotid was resected only to have recurrence later on the opposite side. The authors then tried x-ray therapy without success. Eventually they found cortisone to be helpful. Others have also reported help with steroid therapy[6]. Perhaps resection is chiefly of benefit because the pain fibres that accompany the artery are also resected. Roberts has reported successful local infiltration with procaine. The status of anticoagulant therapy is not clear. It probably would not be of value except for patients with a suspicion of thrombotic extension into the carotid or eye vessels.

The following two cases illustrate the use of prednisolone. A third case (not reported in detail) was a sixty-year old woman with rather marked weakness and mild fever. She did well after surgical removal of a segment of the artery. She had suggestive early involvement of the opposite side. Unfortunately, she has been lost to follow-up study.

Case #1. This 76 year old white woman was seen on March 25, 1957 with the chief complaint of constipation. This she had had all her life; it was worse at intervals and accompanied by mucus and occasionally blood. In recent weeks it had been more pronounced and had been unrelieved by her usual laxatives and dietary measures. Within the preceding four weeks she had noticed joint stiffness, an intermittent chilly feeling and some frontal headache.

The past medical history revealed no serious or complicated illnesses. There had been an automobile accident in 1941, the patient sustaining a fractured humerus.

Physical examination revealed a systolic hypertension (190/88), an asthenic habitus

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(weight 85) and a systolic grade 2 cardiac murmur. The abdomen was slightly full and there was increased peristalsis. Rectal examination was normal. A note was made at this time "peripheral pulses present—walls firm." No mention was made of pain, edema or hyperemia.

A barium enema was done following a normal sigmoidscopy. This revealed diverticulosis of an extensive nature. Six days later she noted tenderness about her temporal scalp. This was severe for 24 hours and then began to subside. When seen the next day she complained of tenderness along the dorsum of each foot and slight ankle edema. Physical examination at this time revealed marked tenderness along the temporal and posterior auricular arteries. There was edema and hyperemia in a nodular fashion. Since the process seemed to be subsiding she was given aspirin. Three days later the tenderness and edema were minimal; there had been a lessening of the joint stiffness.

There was a transient feeling of decreased visual acuity in the right eye six days later with recurrence in two days. Opthalmoscopic examination revealed the typical findings of central retinal arterial occlusion.

At this point the patient was admitted to the hospital and treated with prednisolone*, 5 mg. every eight hours, anticoagulants, and analgesics. Her course was very smooth. All tenderness, edema and hyperemia disappeared in the carotid tributaries. Her weight steadily increased to 93 pounds. There was almost no difficulty with constipation in spite of discontinuing most of her laxatives.

Prednisolone was reduced to 2.5 mg. three times daily in September. The drug will be gradually withdrawn until the middle of October (six months total therapy). It is our hope that this will not lead to a recurrence of the arteritis.

Case #2. This 69 year old white woman was first seen in April of 1955, following her discharge from a Maryland hospital. There she had been treated for pneumonia and studied for hypertensive vascular disease with some evidence of a recent myocardial infarction. Her chief complaints at that time were dyspnea, cough, fatigue and peripheral edema. She had the signs associated with arteriosclerotic heart disease and pulmonary emphysema. Later it was discovered that she had had long standing "asthma." Her peripheral arteries were sclerotic at this time, but no specific mention was made of any single one. Appropriate therapy was given with slow but definite response. In the succeeding months she complained of stiffness and pain in her fingers and hips, intermittent abdominal bloating, fatigue, drowsiness and paresthesia of the hands and legs and burning of her tongue. Salicylate therapy, vitamins and antispasmodics were used with partial success. She developed auricular fibrillation and was given digitalis whole leaf.

In March of 1956 she slipped on the steps, falling backwards and striking her head on concrete. Immediately there ensued marked pain in the neck and scalp. This was poorly controlled with heat and her previous medications. An x-ray of her cervical spine revealed marked degenerative arthritis. Low dosages of steroids (Sigmagen tablets) gave her little additional relief. In May of 1956, the pain became more severe and for the first time temporal pain was present. Physical examination revealed erythematous, edematous, firm posterior auricular and temporal arteries. This was uniform and not nodular. Pain was intense when these were palpated. Prednisolone therapy was started. There was dramatic relief of the symptoms and physical findings with increased appetite, a sense of well being and relief of much of her dyspnea. Heartburn and belching increased while taking 5 mg. three times a day.

The patient moved to Baltimore but reports indicated continued improvement. When seen in February of 1957, both symptomatic and physical improvement was evident. She was controlled with 10.0 mg. prednisolone daily. She no longer took salicylates. To this date she remains largely free of symptoms as long as she takes prednisolone. The amount of arthritic pain compared to that of arteritis cannot be evaluated well since there is infrequent contact.

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* Prednisolone was supplied to these patients through R. R. Mc. Cormick, M.D. of the Schering Corporation.

Comments: The recognition of the classical syndrome of temporal arteritis should not be a problem, although the symptoms may precede the objective findings by months. There is an advantage in being alert to the diagnosis so that treatment can be started to avoid local discomfort and systemic symptoms as well as the ocular and central nervous system complications. Treatment by local surgical excision is valuable, but the advantages of using cortisone are apparent. It is especially useful for patients with bilateral disease, with pathology in the carotid, or with ocular manifestations. The use of anticoagulants deserves further exploration. When steriod therapy is used, it is not clear how long it should be continued. The need for prolonged steriod therapy may limit usefulness but prednisolone in small doses for an extended period of time may obviate some of the complications of cortisone.

Several authors[2] claim that the classical findings (especially the presence of giant cells) are required before making a diagnosis of temporal arteritis. They do not relate the classical entity to the patient with pain along the temporal artery (without local swelling and tenderness) except to point out that not all pain along the temporal artery is due to classical temporal arteritis. Wolff[5] seems to classify the temporal headache without the typical objective and pathological findings with the migraine type of vascular headache or with Horton's histamine headaches. We suggest that many patients may have headaches localized to the temporal artery area without the classical objective findings and which differ from the migraine type of headache. These cases can be helped by procaine infiltration, resections, and drugs such as priscoline, which may relieve severe pain dramatically. The ergot drugs are as a rule less successful here than for the migraine type headaches. It is therefore suggested that the above type of headache be classified under the general term of temporal arteritis or as a variant of the same.

Summary: Two cases of typical temporal arteritis with general malaise, fever, weakness and palpable tender swollen temporal arteries have been helped with prednisolone. One of the patients demonstrates one of the serious complications of the disease with ocular involvement. It is suggested that the syndrome of temporal arteritis should be enlarged to include a larger group of patients who have pain localized to the temporal artery but not all of the classical pathological findings.

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# ISOPROPAMIDE IODIDE: A LONG-ACTING ANTICHOLINERGIC

Robert Seeherman, M.D.

The continuous introduction of drugs that are reported to affect gastrointestinal dysfunction strongly implies that the ideal agent for this purpose has yet to be discovered. In the search for new compounds of this type, the anticholinergic properties of several basic butyramides and butyronitriles have been studied[1-5]. One of these compounds, isopropamide iodide*, was selected for clinical trial because of its prolonged antisecretory and antispasmodic activity.

Isopropamide iodide, (2-carbamoyl-3, 3-diphenylpropyl) - diisopropylmethyl ammonium iodide, is representative of a group of substituted phenylpropylamines all of which are reported to have a depressant effect on gastrointestinal function[6]. Pharmacological and toxicological effects of isopropamide iodide in animals have been described by van Proosdij-Hartzema, et al.[7], and Bhattacharya[8]. Mullie [9, 10] found that a single oral dose of the drug inhibited human basal gastric secretion and gastrointestinal motility for approximately 12 hours. Texter[11] reported that isopropamide iodide is one of the most interesting new synthetic quaternary amines being studied at present.

Although the private practitioner is rarely equipped to describe the metabolism, pharmacology, or pharmacodynamics of a drug, he is trained to observe the effects of drugs on his patients. If his observations are made and reported in a scientific manner, they can be used by other physicians as an index of the drug's performance when it is used in similar patients. With this in mind, I undertook an evaluation of isopropamide iodide to determine its clinical value, to determine whether its anticholinergic effects were sufficiently prolonged to control gastrointestinal symptoms for 12 hours, and to determine whether its prolonged administration produced deleterious effects on blood forming mechanisms.

## Material and Method

Ninety private patients (56 women and 34 men) ranging in age from 20 years to 68 years (average 44 years) took part in the evaluation. Symptomatology of most patients was similar and included epigastric burning or pain, eructation, diarrhea, nausea, vomiting, flatulence, abdominal tenderness and distention. Melena or hematemesis was reported by four patients. Forty-two of the patients had been treated previously, and were chosen for the present evaluation to serve as a control group on which to compare the results of the present medication. The remaining 48 patients were being treated for the first time.

Diagnosis were based on symptomatology, physical examination and laboratory findings. Patients with complicated medical histories and/or symptoms clearly indicative of organic digestive disease underwent radiographic examination, urinalysis, and stool analysis to substantiate the clinical diagnosis. Many of the patients had a history of brief, transient gastrointestinal symptoms and were tentatively diagnosed as having functional gastrointestinal disorders. These patients were given a course of therapy with isopropamide iodide before initiating expensive diagnostic procedures. Patients in this group who failed to respond to therapy within a short period of time were asked to undergo complete gastrointestinal work-ups in order to determine the cause of their distress. Diagnosis of the patients were: peptic ulcer (18), acute gastritis (4), hyperchlorhydria (3), hypermotility (23), irritable colon syndrome

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* Darbid, trademark of Smith, Kline & French Laboratories, Philadelphia, Pa.

(20), pyloroduodenal irritability (21), and functional diarrhea (1).

To establish an incidence of placebo response, 12 of the 48 patients who had not been treated previously were selected at random and were given placebo therapy for two weeks. They were interviewed weekly regarding symptomatic improvement. At the end of the placebo period, these patients plus 6 additional ones who had not been treated before were given 5.0 mg. tablets containing active isopropamide iodide which they took every 12 hours. No dietary restrictions were placed on this group of patients nor were any of them given antacids, alkalis, sedatives, or tranquilizing agents.

The remaining 72 patients were placed on a regimen of isopropamide iodide and a soft bland diet. All patients were given 5.0 mg. tablets of the drug initially and were instructed to take the medication once every 12 hours. The amounts of subsequent doses were increased or decreased depending on the patient's response to therapy; all doses were given on a 12 hour basis. When indicated, antacids, sedatives, or tranquilizing drugs were prescribed. Medication for conditions unrelated to gastrointestinal complains (hypertension, diabetes, anemia, and systemic infections) was administered.

Patients reported to the office at weekly or bi-weekly intervals for progress consultations and physical examinations. As the acute phase of their distress was controlled, patients returned only once a month for follow-up examinations and consultation. The evaluation lasted for one year. The average duration of treatment was 3.2 months.

The effect of prolonged isopropamide iodide therapy on blood forming mechanisms was determined in 10 patients who had been taking the drug for an average of 8.8 months. Four of these patients, all women, were being treated for hypochromic microcytic anemia prior to the initiation of isopropamide iodide therapy.

## RESULTS

Clinical results were based on whether the patient became asymptomatic. A "Good" response was used to designate those patients who obtained complete relief of their symptoms. A rating of "Slight or No Improvement" indicated that some of the primary symptoms had remained.

Three of the patients receiving placebos reported that they felt better during the two week placebo period. None of these patients experienced complete disappearance of symptoms, but they did note a significant degree of improvement. An incidence of placebo reaction of this magnitude is not abnormal and may be expected in treating a group of patients in whom emotional factors contribute to or are the cause of distress. Oddly enough, none of the patients reported side effects while receiving placebo medication. When given active medication, 9 of the patients who had received placebos obtained complete relief of symptoms and 3 of them showed slight or no improvement. One of these latter patients, a patient with duodenal ulcer, became asymptomatic after prochlorperazine*, a tranquilizing agent, was added to the isopropamide iodide regimen. Two of these patients reported mild dryness of the mouth while receiving isopropamide iodide.

Results obtained by the 18 patients (including the 12 patients who had received placebo medication) who received only isopropamide iodide are shown in Table I. Fifteen of the patients had good results and three had only slight or no improvement. Dryness of the mouth was reported by 2 of the patients in this group.

TABLE I

Responses of Patients
To Isopropamide Iodide

| | Results | | |
|---|---|---|---|
| Diagnosis | Good | Slight or No Improvement | Total |
| Peptic Ulcer | 2 | 1 | 3 |
| Pyloroduodenal Irritability | 5 | 0 | 5 |
| Irritable Colon Syndrome | 4 | 2 | 6 |
| Pylorospasm | 4 | 0 | 4 |
| Totals | 15 (83%) | 3 (17%) | 18 |

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* Compazine, trademark of Smith, Kline & French Laboratories, Philadelphia, Pa.

Results in the remaining 72 patients, some of who had received antacids, sedatives, or tranquilizing agents and who were on a moderately restricted diet, are shown in Table II. Of the 53 patients with functional gastrointestinal disorders, 46 obtained good results while 7 showed little or no improvement. Seventeen of the 19 patients with organic digestive diseases had good results and the remaining two did not improve. Fourteen of the 15 patients with peptic ulcer showed outstanding improvement. In all, a total of 63 patients had good results and 9 showed slight or no improvement.

TABLE II

Responses of Patients
To Isopropamide Iodide,
Supportative Medication
and Diet

| Diagnosis | Results: Good | Results: Slight or No Improvement | Total |
|---|---|---|---|
| Functional Disorders | | | |
| Pylorospasm | 17 | 2 | 19 |
| Irritable Colon Syndrome | 12 | 2 | 14 |
| Pyloroduodenal Irritability | 14 | 2 | 16 |
| Functional Diarrhea | 1 | 0 | 1 |
| Hyperchlorhydria | 2 | 1 | 3 |
| | 46 | 7 | 53 |
| Organic Diseases | | | |
| Peptic Ulcer | 14 | 1 | 15 |
| Acute Gastritis | 3 | 1 | 4 |
| | 17 | 2 | 19 |
| Totals | 63 (87%) | 9 (13%) | 72 |

TABLE III

Responses of Patients
to Previous Medication
and to Medication with
Isopropamide Iodide

| Medication | Results: Good | Results: Slight or No Improvement | Total |
|---|---|---|---|
| Previous | 9 | 33 | 42 |
| Isopropamide Iodide | 37 | 5 | 42 |

Table III shows the results obtained by the group of 42 patients who had undergone previous therapy. As will be noted, a greater number of patients had good results while they were taking isopropamide iodide than when they received previous therapy.

The duration of action of isopropamide iodide was determined by the number of daily doses required by each patient to obtain an optimum individual symptomatic response. Eighty-four of the patients obtained their best results while taking isopropamide iodide once every twelve hours. The remaining 6 patients required the drug once every 8 hours. In all, 82 patients required 5 mg. every 12 hours, 2 required 10 mg. every 12 hours, and 6 required 5 mg. every 8 hours. The number of patients that benefitted while taking isopropamide iodide on a 12 hour regimen indicates that its anticholinergic effects last approximately 12 hours.

The results of blood counts are shown in Table IV. The blood counts of all patients are within normal limits and indicate that prolonged isopropamide iodide therapy did not have an adverse effect on blood forming mechanisms.

Because of the widespread pharmacological activity of all anticholinergic agents, side effects accompanying the use of these drugs are not uncommon. During the evaluation of isopropamide iodide, eighteen patients reported mild to moderate side effects commonly seen with anticholinergics in general. Seven patients reported that they were constipated; 6 had dryness of the mouth; and 2 had abdominal cramps. One patient each reported the following combination of side effects: dryness of the mouth and blurred vision, dryness of the mouth and constipation, and urinary retention and constipation. The drug had to be discontinued only once because of severe side effects. Constipation was overcome in most patients with mild laxatives, while the other side effects could be eliminated simply by reducing the dose of isopropamide iodide.

## COMMENT

As pointed out by Texter[11], drugs that affect gastrointestinal function have been designed primarily for the treatment of organic disease and, while useful in allay-

TABLE IV

Complete Blood Counts

| Patient | Total Poly. | Lympho. | Eosino. | Mono. | R.B.C. (in Millions) | W.B.C. (in Thousands) | Heomoglobin |
|---|---|---|---|---|---|---|---|
| E. A. | 63% | 33% | 0% | 4% | 4.24 | 11.1 | 12.0 gm. |
| S. M. | 56% | 26% | 4% | 4% | 4.39 | 6.4 | 12.5 gm. |
| C. Z. | 70% | 24% | 1% | 4% | 4.19 | 7.25 | 12.5 gm. |
| M. H.* | 60% | 30% | 4% | 6% | 3.89 | 5.2 | 11.5 gm. |
| J. E. | 63% | 33% | 0% | 4% | 4.42 | 9.2 | 13.5 gm. |
| E. V.* | 65% | 32% | 0% | 3% | 4.04 | 8.25 | 11.0 gm. |
| J. E.* | 68% | 28% | 2% | 2% | 4.09 | 7.8 | 10.5 gm. |
| V. C. | 73% | 20% | 5% | 2% | 4.22 | 7.6 | 12.5 gm. |
| F. E.* | 51% | 43% | 1% | 4% | 4.18 | 7.2 | 11.5 gm. |
| C. E. | 68% | 22% | 8% | 2% | 4.92 | 9.1 | 15.0 gm. |

* Under treatment for hypochromic, microcytic anemia.

ing pain associated with functional disorders, have no effect on the patient's personality or emotional stability. During the present evaluation period, it was noted that patients whose gastrointestinal distress was related to anxiety or tension could obtain symptomatic relief from the drug. However, if the drug was discontinued and the patients were faced with situations that caused an abnormal amount of stress, their symptoms invariably returned. Reinstitution of isopropamide iodide in these patients produced effects that approximated those seen previously.

None of the patients with organic disease of the gastrointestinal tract suffered a recurrence of symptoms during the evaluation. Some of these patients, after the acute phase of their distress had been controlled, took only one isopropamide iodide tablet a day, usually in the morning.

Side effects observed during the evaluation of isopropamide iodide consisted mainly of constipation and dryness of the mouth. Visual blurring, seen frequently with other drugs of this type, was reported only once. Six of the 18 patients who reported side effects did so without being questioned. The remainder of these patients (12) tolerated the side effects and reported them only upon being questioned.

## SUMMARY

1. Ninety private patients with a variety of functional and organic digestive disorders were treated with a new, long-acting anticholinergic, isopropamide iodide for one to eleven months (average 3.2 months). Fifty-six of the patients were women and 34 men. Forty-two of the patients had been treated previously for their present complaints; the remainder were being treated for the first time.

2. Twelve of the patients who had not been treated previously were placed on placebo therapy for 2 weeks. Three of these patients responded favorably to placebo medication. These twelve patients plus six additional patients who had not been treated previously were placed on 5.0 mg. of isopropamide iodide without concomitant medication or dietary restriction. Fifteen of these patients had good results.

3. The remaining 72 patients were placed on isopropamide iodide and, when indicated, received antacids, sedatives, or tranquilizing agents; all of these patients were on a moderately restricted diet. Sixty-three of these patients had good results.

4. Eighty-four of the 90 patients obtained their best response while taking isopropamide iodide on a every 12 hours basis. This seems to indicate that the anti-

cholinergic effects of the drug last for approximately 12 hours.

5. Side effects were reported by eighteen of the patients but were mild or moderate in all instances. The drug had to be discontinued only once because of side effects.

6. Prolonged administration of isopropamide iodide seemed to have no deleterious effects on blood forming mechanisms as indicated by the results of complete blood counts.

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# MEDICAL SOCIAL WORK*

JOAN E. TURNER**

It is a double honor for me to be a speaker at this symposium. As is obvious, I am sort of chief delegate for the female of the species—and this is decidedly pleasant for me. Also, I am a newcomer to Delaware whose sinuses have not yet reacted to the climate here. I have been told that sinus trouble is a prerequisite to feeling like a native, so while I acquire residence and hope to do so without symptoms, it is an honor to represent both the Delaware Curative Workshop and my colleagues in the profession of social work.

Medical social work is that division of social services functioning in medical settings and concerned with programs and problems of medical care. In case you have ever wondered how it got started, we were a physician's idea in the first place.

Some fifty years ago, Dr. Richard Cabot at the Massachusetts General Hospital in Boston, first felt the need of a medical social worker. He realized that illness created social, economic, and emotional hardships for some patients that needed to be treated concurrently with their physical disorders. Dr. Cabot's recognition was essentially two-fold:

One: People are never simple medical diagnoses but are social beings for whom illness has repercussions in the realm of personal, family, and community relationships.

Two: Unless the social difficulties are treated simultaneously with the medical difficulties, an individual may not benefit from his medical care. In other words, what illness means to a patient is often as important as the illness itself.

Medical social work has grown tremendously since its beginning, and in some parts of the country is now available to all physicians. I realize that you in Delaware have not had much of an opportunity to work with medical social workers but we quite truthfully belong to you and are, I believe, becoming more accessible.

While part of our professional development has been devoted to educational preparation (and qualified social workers now have intensive graduate school training), it is significant to mention to you that our original association with hospitals has expanded into other types of medical settings. Much as rehabilitation has developed into a special medical concern, so medical social workers are becoming staff members in community rehabilitation centers. My own position as medical social worker at the Delaware Curative Workshop is an example of this.

In the group of patients receiving treatment at the Workshop are many who can be classified as chronically ill—hemiplegics, arthritics, patients with polio residuals, accident victims, and others for whom some degree of physical impairment is permanent. Chronic disabilities are reflected in a wide range of age, working capacity, and outlook. It is no small task to help these people attain a maximum level of well-being but we are vitally concerned with this challenge. After all, when we accept responsibility for treating persons with physical impairments, do we not at the same time assume responsibility for helping them in the broadest sense of the word?

Medical social workers make no claim to be "miracle men" but in the rehabilitation of the chronically ill, I believe we have a unique and valuable contribution to make.

Consider for a moment Mrs. X, who comes to your office with a hemiplegia as the result of a cerebrovascular accident. Mrs. X used to be a gadabout, somewhat of a human dynamo, and one of these energetic people who could create two pies in the oven at home and manage several others of the community type. Illness has collapsed her world and she is frank to say that she would rather be "dead" than "crippled." She has withdrawn into her home where she rebuffs the concern of her friends; resents being dependent on her family and wonders why she must endure the terrible penance of paralysis.

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* Part of a symposium on REHABILITATION OF THE CHRONICALLY ILL presented by the Delaware Chapter, American Academy of General Practice at the Alfred I. duPont Institute, April 13, 1957.

** Medical Social Worker, Curative Workshop of Delaware.

You see that Mrs. X would benefit physically from care at the Curative Workshop. Do you see, also, that Mrs. X needs real help with the emotional aspects of her situation?

A medical social worker can help Mrs. X and her family express their feelings, mobilize their strengths, and reconstruct their values so that physical progress has practical value and satisfaction to the patient as an individual. If you are thinking—why can't a therapist accomplish this—there are good reasons why not. I by no means discredit therapists awareness of emotional problems, but they have neither time nor training to cope with social diagnosis and treatment. Numerous interviews with Mrs. X and her family; a home visit to evaluate facilities there; an interpretation of social data—these are a social worker's province and require special skills.

Consider, also, Mr. Y. He is an elderly gentleman, a retired carpenter, who consults you because his arthritis is very painful. He lives with his married daughter and tends to feel sort of neglected in the hustle and bustle of her life. He ambulates quite well using a cane, but there is little reason to walk and no place to go.

You feel that heat, massage, and functional exercise will help relieve his physical distress. He is treated, with considerable improvement. One day a medical social worker suggests to you that she refer Mr. Y to the Wilmington Senior Center. You approve of this, perhaps because primarily you see no harm in it.

Next time you see Mr. Y he comes in the evening because there was an afternoon party at the Center and he was on the committee. He is feeling much better, hardly notices any pain, and this you will never believe, he tells you, but he is going to supervise a weekly class in woodworking.

A medical social worker has helped Mr. Y achieve a happier, more worthwhile level of performance—a value in maintaining his physical improvement. Involved in this were several contacts with the Senior Center, many discussions with the patient, a determination that his referral was indicated, formulation of a transportation arrangement for him, and a follow-up to see that the plan worked out all right. This type of planning is not something you can expect of a secretary somewhere, but is one of a medical social worker's special contributions.

Lastly, consider Mr. Z, a young man with a chronic heart disease. His careful examination at your office results in your recommendations that he limit climbing of stairs, follow a special diet, and avoid heavy physical labor. In view of this news, Mr. Z says nothing. Six weeks later you are called to see him in the hospital because he has had a myocardial infarction. He then reveals that he is a dock worker, lives on the third floor of a rooming house, and eats all his meals in restaurants.

Would you think about sharing this situation with a medical social worker who could help Mr. Z make the vocational and environmental changes necessary to his continued productivity and, in fact, essential to his continued life? This, too, is an area where a medical social worker's evaluation and knowledge of community resources can be used to good advantage.

The brief case illustrations I have mentioned by no means cover the gamut of dilemmas that face patients with chronic illness. They are, perhaps, representative of situations you might encounter in which medical social workers could be helpful. I mean by "helpful" a professional type of objective assistance including a particular relationship with a patient — special to medical social work.

Not all persons need social service assistance to use rehabilitation services. Some need direction to psychiatric treatment as a means of help. In between, however, are many individuals whose personal problems may be alleviated through their use of social casework services.

In this day and age, when rehabilitation of the chronically ill is a mutual concern and not a solo endeavor, it seems to me that medical social work offers you three general opportunities:

*First:* Counselling and other direct services to patients and their relatives.

*Second:* Understanding and competent interpretation of social information so that medical plans will be realistic in relation to an individual's capacities and limitations.

*Third:* A liaison service between a patient and community resources to which he may be directed for help.

Medicine is ever developing new ways to treat chronic illness. Patients are, first of all, human beings — each with a particular life situation and personality pattern. Because success or failure in rehabilitation is determined not only by the availability of specialized rehabilitative services, but by an individual's ability to use these services, and because no other professional discipline provides or duplicates the skills of medical social workers in the personalized rehabilitation of the chronically ill, I believe we are here to stay.

# ✚ Editorials ✚

## THE FIRST STATE

Again, Delaware is among the leaders in a worthwhile cause — bringing together the legal and medical professions. *Enthusiasm* was the keynote of the second annual joint meeting of the Delaware State Bar Association and the Medical Society of Delaware. Elsewhere in this issue we are privileged to present the paper of the Honorable Emory H. Niles which contains the formula at present operating in the State of Maryland to attain a goal long sought by the legal profession — impartial medical testimony. Our thanks to Judge Niles for his contribution. May the spirit of enthusiastic understanding and cooperation continue.

## A STITCH IN TIME

This adage holds true in many types of medical practice but applies to none more than the field of plastic surgery. As physicians we must guard against taking too lightly little Johnnie's fall in which he cuts his face or little sister's cut around the face or neck. This subject is of utmost medico-legal interest and has been ably discussed in another article in this issue.

## A PRIVILEGE

Some consider attendance at medical meetings a duty. Examine the outstanding program for the forthcoming annual meeting of the Medical Society of Delaware. President Murray spent many hours of hard work planning a program of general and practical interest. It is not just a duty to attend, it is a privilege.

# BOOK REVIEWS

GIFFORD'S TEXTBOOK OF OPHTHALMOLOGY. By Francis Heed Adler, M.D., William F. Norris and George E. DeSchweinitz, Professor of Ophthalmology, University of Pennsylvania Medical School; Consulting Surgeon, Wills Eye Hospital and Children's Hospital of Philadelphia. 483 pages with 277 illustrations and 26 color plates. 1957. 6th edition. W. B. Saunders Company, Philadelphia. Price $8.00.

The fact that this book has gone through six editions is tribute enough to its value and popularity. Adler, in his latest revision, has endeavored to perpetuate Gifford's original intention of keeping this a practical and brief reference for the medical student and general practitioner. There is no book that comes to the mind of this reviewer which covers the common and many of the uncommon conditions occurring in or with associated eye symptoms with more considered restraint and conciseness. Perhaps a few more illustrations would be helpful. In ophthalmology, where so many conditions are visible, textbook illustrations, particularly in color, are extremely useful. It is appreciated, of course, that illustrations add a great deal of expense to publication.

Four chapters are devoted to the methods of examining the eyes. There are individual chapters on the disease conditions affecting the structures from the eyelids back to and including the orbit with separate chapters on neuro-ophthalmology, surgical procedures, and the treatment of ocular injuries. A separate chapter on therapeutic agents is most useful.

To the medical student who must get a grounding in ophthalmology and the general practitioner whose time for reference work must be spread thin, this book will give brief answers to ophthalmological questions, whether it be an external condition, a fundus abnormality, a neuro-ophthalmological diagnostic question or what he can do for an imbedded foreign body. The more serious treatment problems are discussed briefly enough to give an indirect warning, and in some cases, a direct warning, that the specialist be consulted. A good book for the busy general practitioner.

N. L. C.

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THE TREATMENT OF BURNS. By Curtis P. Artz, M.D., F.A.C.S., Lt. Col., MC, USA (Ret.). Formerly, Director, Surgical Research Unit, Brooke Army Medical Center, Fort Sam Houston, Texas; Presently, Associate Professor of Surgery, University of Mississippi Medical Center, Jackson, Mississippi and Eric Reiss, M.D., American Cancer Society Scholar and Instructor in Medicine, Washington University School of Medicine, St. Louis, Missouri. 250 pages with 199 illustrations. 1957. W. B. Saunders Co., Philadelphia. $8.00.

This book presents an excellent review of the major portion of the subject of burns with their management and prevention of complications. As the authors state in their preface, this book is not an exhaustive treatise on burns; however, it contains a vast amount of practical information and ample references to other more exhaustive publications on the subject. Of particular interest are the first four chapters dealing with the scope of the burn problem, general immediate care, initial replacement therapy, and initial local care. These chapters are well written and contain a wealth of useful information. The remainder of the book is devoted to the technical aspect of specific burn therapy.

This book should be a must for all who are actively engaged in the treatment of burns and should be read or at least scanned by all men in surgical training.

It is true that, as the authors point out, severe burns are frequently mishandled and the morbidity is unnecessarily increased. This book should be available in the library of all general hospitals for ready reference in regard to the problem of burn management.

R. N. T.

An Atlas of Cardiac Surgery. By Jorge A. Rodriquez, M.D., Assistant Professor of Surgical Anatomy and Research Associate, Department of Surgery, University of Mississippi Medical School. 250 pages, 1957. W. B. Saunders Co., Philadelphia. $18.00.

This book includes detailed descriptions of twenty-nine accepted cardiac surgical procedures. The first thirty-four pages dealing with the anatomic relationship of the heart and great vessels are above reproach; the illustrations and legends are complete to the letter. The second section covering adjuvants to cardiac surgery is interesting because of the straight forward delivery of both hypothermia and heart lung machines. The profound difficulties of using these or any mechanical devices are not stressed to the utmost extent.

Section III concerns itself with surgery of the great vessels. The author, being not only a surgeon but a fine artist, shows schematic outlines as to the surgical problem and ultimate solution. It was felt by the reviewer that this method would be of value in the subsequent sections of the atlas.

Section IV on the valves of the heart is comprehensive, the illustrations are almost self-explanatory. Section V includes surgery of congenital defects of the heart. This is interesting as it covers completely the early "blue baby" operations of Taussig and Blalock down to the present (12 years later) of the open heart and right side approach to the mitral valve. Hufnagel's contribution to aortic insufficiency is presented with utmost respect as it should be. The last section has so much in so little space concerning revascularization, cardiac arrest, wounds of the heart and pericardiectomy that the reader is advised to follow up on current literature.

In summary, this is a good book: 1.) for thoracic surgeons, a quick reference, 2.) for residents, a teaching aid, and 3.) for hospital libraries, a must. The only criticism which might be offered is that more of the schematic drawings be included and, of course, color to dramatize the artist's colossal achievement. Dr. Rodriguez should be complimented on this great work. The time, energy, travel, and artistic talent expended in this book will long be appreciated. In an ever changing specialty, this atlas will be a foundation for the future of cardiac surgery.

F. T. O'B.

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# CARDIAC SURGERY

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It is a policy of the Delaware Heart Association to see that no needy patient is denied proper surgical treatment of a heart disorder because of their inability to pay. Unfortunately, any plan of this magnitude must be governed by rules and these rules must be followed if the plan is to succeed.

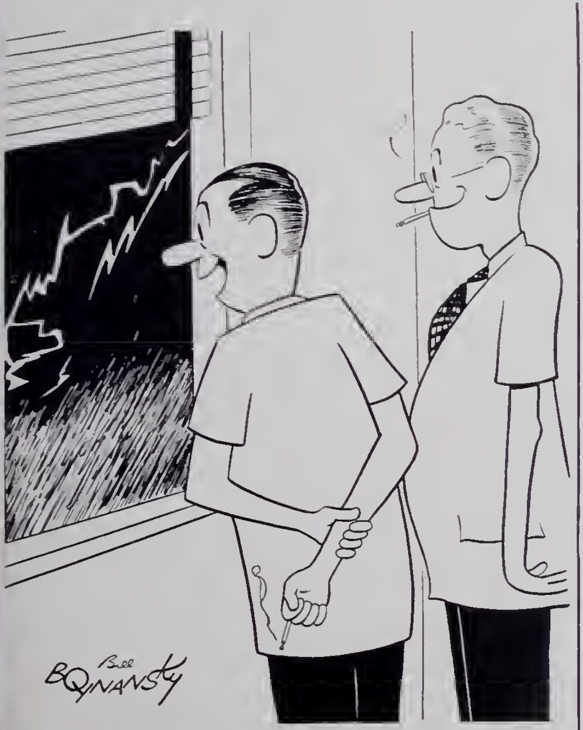
Although all physicians of Delaware have been repeatedly informed of the procedure in these cases, sufficient misunderstanding has occurred to warrant its frequent publication.

The following procedure was formulated by the Medical Advisory Board and adopted by the Board of Directors of the Delaware Heart Association.

To be eligible for financial assistance, the patient must be admitted to the Delaware Heart Association Cardiac Clinic. This is held two days a month at the Delaware Hospital. The patient will be examined by a physician from the University of Pennsylvania. If he suggests further study or surgery, the social service report will be sent to the Finance Committee of the Delaware Heart Association. If approved, that committee will authorize treatment at the Hospital of the University of Pennsylvania.

In the case of an emergency, the above procedure can be accomplished by telephone but patients handled in any other manner cannot be helped by the Association. Arrangements should be made with Mrs. Mary Sullivan, Delaware Hospital Social Service Department.

For patients residing in lower Delaware, a screening clinic is held the first Thursday of the month at the Beebe Hospital.



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"DID YOU TELL HIM ONE A DAY WOULD BE ALRIGHT, DOCTOR?"

# WOMAN'S AUXILIARY

## Report of New Castle County President

I want you all to know that the past two years have been happy ones for me. The honor and pleasure that have been mine to be your President would not have been possible if I had not had the wonderful officers and executive committee to work with.

Also, I want to thank each member of the Auxiliary for all her help and cooperation.

It has been a very successful year for our organization. The plans we set forth at our September meeting have been carried out. On April 23rd a card party and fashion show was held at the duPont Country Club as our fund-raising activity. It was a great success and we netted $868.31. It was most ably directed by Mrs John Alden, Chairman, and Mrs. Charles Richards, co-Chairman.

Our membership Chairman, Mrs. James Aikins, reports 18 new members and a loss of 5 members during the year. Our membership now stands at 220 members.

Mrs. I. Lewis Chipman, our Program Chairman, planned our four programs this year. In September, Dr. Shands spoke on plans for the renovation and expansion of the Academy of Medicine. In November, Mrs. Laurr of Washington, D. C., a friend of Mrs. Lawrence Jones, made several novel and charming Christmas floral arrangements for us. In January, Mrs. Helen Wagner and Mrs. William Jenkins showed us colored slides and gave a commentary on the works of the Doctors Miller in Nepal. This meeting was attended by more of our members than any other this year. In March, Miss Thomason from the staff of the Florence Crittenton Home spoke to us about the home, facilities and services given the unwed mother at the home.

Our publicity chairman, Mrs. Allen Wooden, has been most faithfully reporting our regular meetings and special announcements to the newspapers.

Mrs. Richard Colfer, Sewing Chairman, reports there were seven sewing meetings. A total of 198 garments, 48 blankets, and 12 aprons were turned in to the Visiting Nurses Association.

Mrs. Herbert M. Baganz reports for Today's Health that there were 90 one-year subscriptions, and 13 two-year subscriptions, 4 three-year subscriptions, and 4 four-year subscriptions sold this year. A total of 144 subscriptions points are credited to our Auxiliary, which is double what we did last year.

Mrs. Charles Richards, our A.M.E.F. Chairman, reports we sent $220 to A.M.E.F. this year.

Mrs. Walter Goens, our Mental Health Chairman, reports that some of our members have worked out at Farnhurst this year and their help was much appreciated.

Our Dance Chairman, Mrs. G. B. Heckler, reports that the dance was well attended and that everyone enjoyed himself.

Last, but certainly not least, our hospitality chairman, Mrs. S. G. Rogg, has arranged our four luncheon meetings. We had just a business meeting in September at the Academy. Our November meeting was held at the University Club and 35 persons attended. We moved to the Powder Mill in January and had 60 people for lunch. In March, we had 29 for lunch at the Powder Mill. I would like to express my great thanks to Mrs. Rogg for the wonderful job she has done.

Before I close this report, I want to thank my Secretary, Mrs. Hunt, and our Treasurer, Mrs. Eriksen, for their efficient and conscientious service.

It has been a great pleasure and a privilege to act as your President. I have really enjoyed my two years' service with you. May I wish you all the success possible in the years to come.

Respectfully submitted
Martha S. MacKelcan

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2. Assali, N. S.: Personal communication, May 28, 1956.

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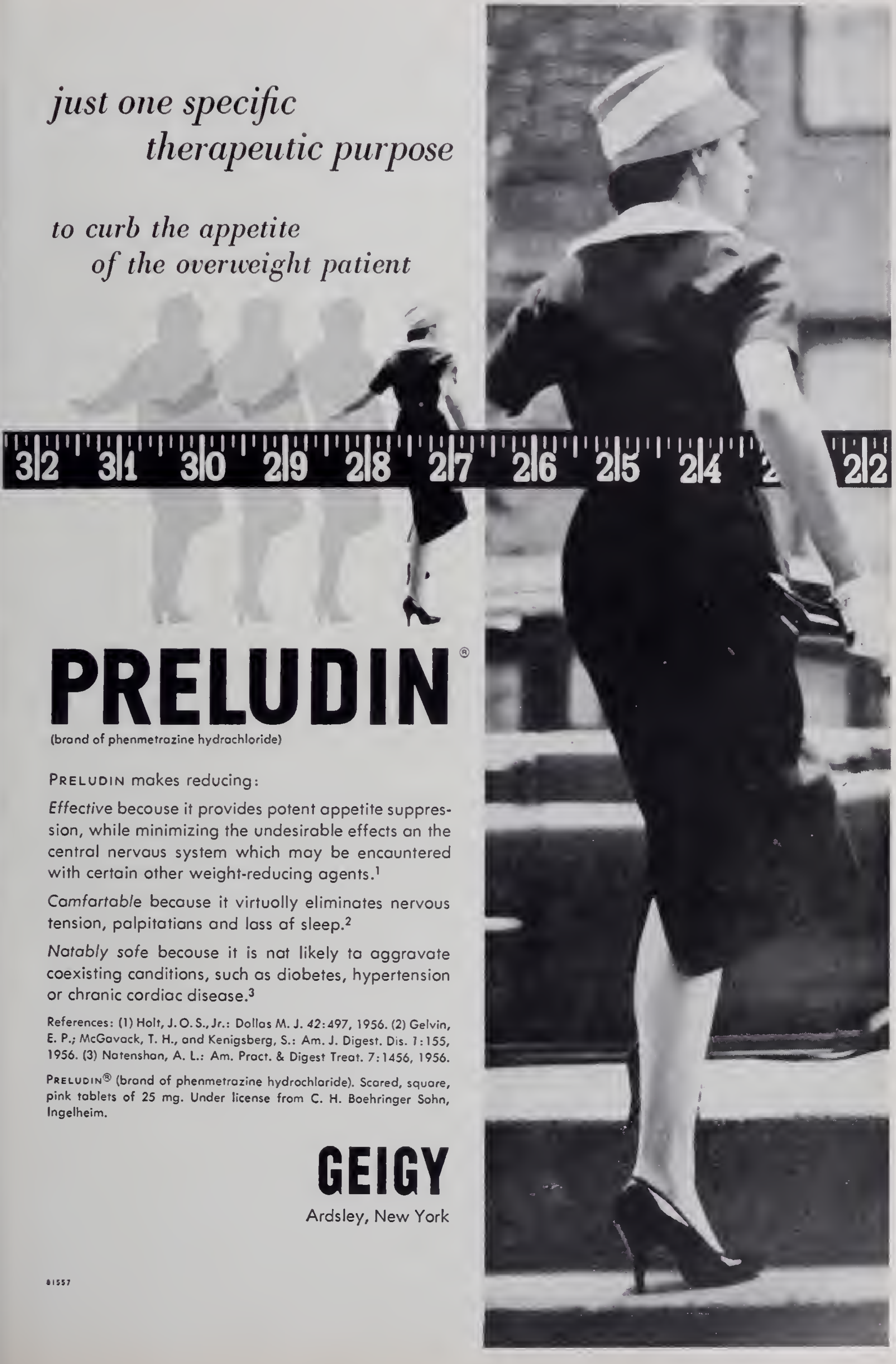

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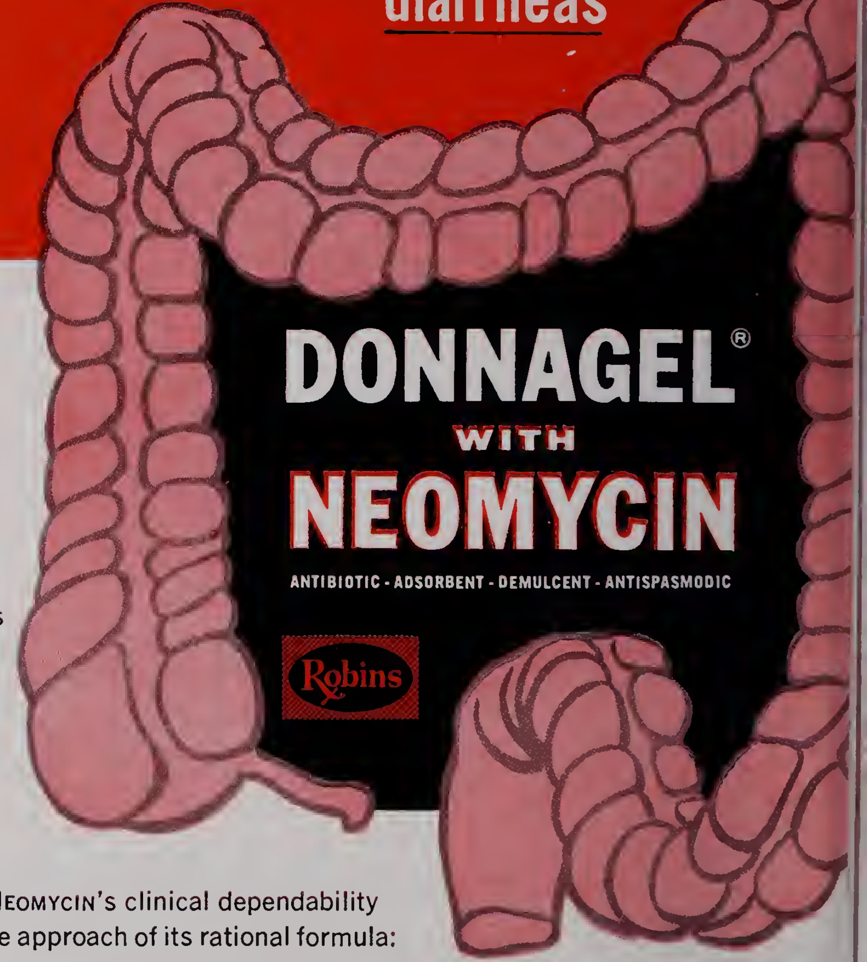

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| Natural belladonna alkaloids:<br>hyoscyamine sulfate (0.1037 mg.)<br>atropine sulfate (0.0194 mg.)<br>hyoscine hydrobromide (0.0065 mg.) | anti-spasmodic | Relieves intestinal hyper and hypertonicity. |
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**INDICATIONS:** DONNAGEL WITH NEOMYCIN is specifically indicated in diarrheas or dysentery caused by neomycin-susceptible organisms; in diarrheas not yet proven to be of bacterial origin, prior to definitive diagnosis. Also useful in enteritis, even though diarrhea may not be present.

**SUPPLIED:** Bottles of 6 fl. oz. At all prescription pharmacies.

**DOSAGE:** Adults: 1 to 2 tablespoon to 30 cc.) every 4 hours. Children year: 1 to 2 teaspoonfuls every 4 Children under 1 year: ½ to 1 tea ful every 4 hours.

**ALSO AVAILABLE:** DONNAGEL, the formula, for use when an antibioti indicated.

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upon request.

*optimal dosages for* ATARAX,
*based on thousands of case histories:*

**25** *mg. (t.i.d.)*

*for these* **25** *adult indications:*

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PEACE OF MIND ATARAX®
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*Tablets-Syrup*

**10** *mg. (t.i.d.)*

*for these* **10** *pediatric indications*

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- to correct many common anemias
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- to aid in promotion of growth and stimulation of appetite in poorly nourished children

*Each teaspoonful (5 cc.) supplies:*

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| Elemental Iron<br>(as ferric ammonium citrate and colloidal iron)<br>(equivalent to 130 mg. ferrous sulfate exsiccated) | 38 mg. |
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| Thiamine mononitrate | 1.0 mg. |
| Riboflavin | 1.0 mg. |
| Niacinamide | 5 mg. |
| Pantothenic acid (Panthenol) | 1.5 mg. |
| Pyridoxine hydrochloride | 0.5 mg. |

Alcohol content: 12 per cent

*Dosage:* 1 or 2 teaspoonfuls t.i.d.

*Supply:* Bottles of 8 ounces and 1 pint.

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*Squibb Quality—*
*the Priceless Ingredient*

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**SYNEPHRICOL® cough syrup**

**ANTITUSSIVE • DECONGESTANT • ANTIHISTAMINIC**

*Combines:*

Central Antitussive Effect — mild, dependable
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*plus* Antihistaminic and Expectorant Action

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*Each teaspoonful (4cc.) contains:*

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| Neo-Synephrine® hydrochloride | 5.0 mg. |
| Thenfadil hydrochloride | 4.0 mg. |
| Dihydrocodeinone bitartrate | 1.33 mg. |
| Potassium guaiacol sulfonate | 70.0 mg. |
| Ammonium chloride | 70.0 mg. |
| Menthol | 1.0 mg. |
| Chloroform | 0.02 cc. |
| Alcohol | 8% |

Bottles of 16 fl. oz.

*EXEMPT NARCOTIC*

when anxiety and tension "erupts" in the G. I. tract...

**IN DUODENAL ULCER**

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*Combines* Meprobamate *(400 mg.)* the most widely prescribed tranquilizer . . . helps control the "emotional overlay" of duodenal ulcer — without fear of barbiturate loginess, hangover or habituation . . . *with* PATHILON *(25 mg.)* the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

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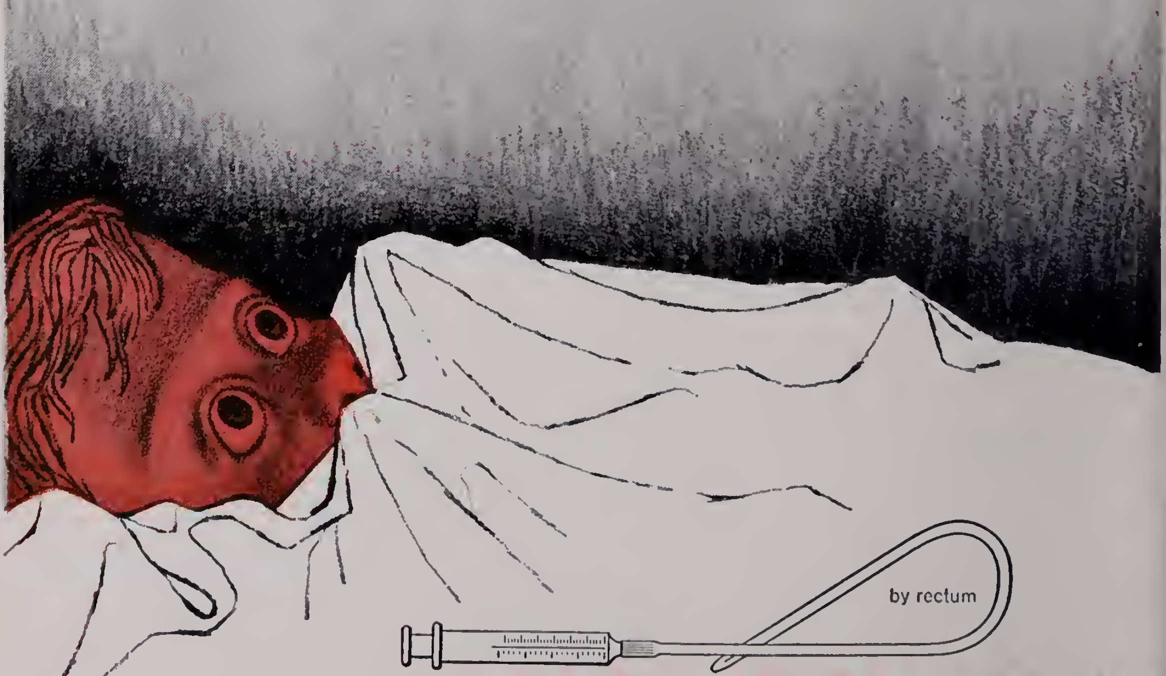

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(DACTIL® + PIPTAL® – in one tablet)

rapid, prolonged relief throughout the G.I. tract
with unusual freedom from antispasmodic
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many patients with MILD involvement can be effectively controlled with

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and NOW for patients with SEVERE involvement

MULTIPLE COMPRESSED TABLETS

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The first meprobamate-prednisolone therapy

the one antirheumatic, antiarthritic that simultaneously relieves: (1) muscle spasm (2) joint inflammation (3) anxiety and tension (4) discomfort and disability.

**SUPPLIED:** Multiple Compressed Tablets in three formulas: 'MEPROLONE'-5—5.0 mg. prednisolone, 400 mg. meprobamate and 200 mg. dried aluminum hydroxide gel. 'MEPROLONE'-2—2.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel. 'MEPROLONE'-1 supplies 1.0 mg. prednisolone in the same formula as 'MEPROLONE'-2.

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*hiectasis*
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*nusitis*
*gitis*
*eitis*
*oiditis*
*tococcal pharyngitis*
*haryngitis*
*eobronchitis*
*rial pneumonia due to*
*istant pneumococci,*
*phylococci, or mixed flora*
*or nonspecific*
*eumonia not responsive*
*other therapy*
*abscess*
*ular tonsillitis*
*yngitis caused by*
*istant staphylococci,*
*reptococcus viridans,*
*hemolytic Streptococcus*
*pneumonia*
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of **934** patients with respiratory infections treated with Signemycin†[1]

**875** patients showed an excellent or good response

**38** patients had fair response

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and with outstanding safety and toleration **914** patients had no side effects

Increasing use of Signemycin V and other Signemycin formulations has confirmed the value of this agent in the armamentarium of the physician treating antibiotic-susceptible infections, particularly those seen at home or in office where susceptibility testing may not be practicable and where immediate institution of the most broadly effective therapy is necessary.

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*ences:* 1. Case reports in the Pfizer Medical tment Files from fifty-three clinicians, and ollowing published reports: Shubin, H.: iotic Med. & Clin. Therapy 4:174 (March) Carter, C. H., and Maley, M. C.: Antibi-Annual 1956-1957, New York, Medical En-edia, Inc., 1957, p. 51. Winton, S. S., and ow, E.: Ibid., p. 55. LaCaille, R. A., and t, A.: Ibid., p. 19.

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when anxiety and tension "erupts" in the G. I. tract...
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*Combines* Meprobamate (*400 mg.*) the most widely prescribed tranquilizer . . . helps control the "emotional overlay" of ileitis — without fear of barbiturate loginess, hangover or habituation . . . *with* PATHILON (*25 mg.*) the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

*Dosage:* 1 tablet t.i.d. at mealtime. 2 tablets at bedtime. *Supplied:* Bottles of 100, 1,000.

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# A SINGLE REPORT OF
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*for certain disorders of menstruation and pregnancy*

With NORLUTIN you can now prescribe truly effective *oral* progestational therapy. Small oral doses of this new and distinctive progestogen produce the biologic effects of injected progesterone.

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**with**
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▲ Presecretory to secretory endometrium after 5 days' treatment with NORLUTIN.

▲ The x-ray diffraction pattern of NORLUTIN distinguishes its crystal structure from that of other progestogens.

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*minor
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can mean
major
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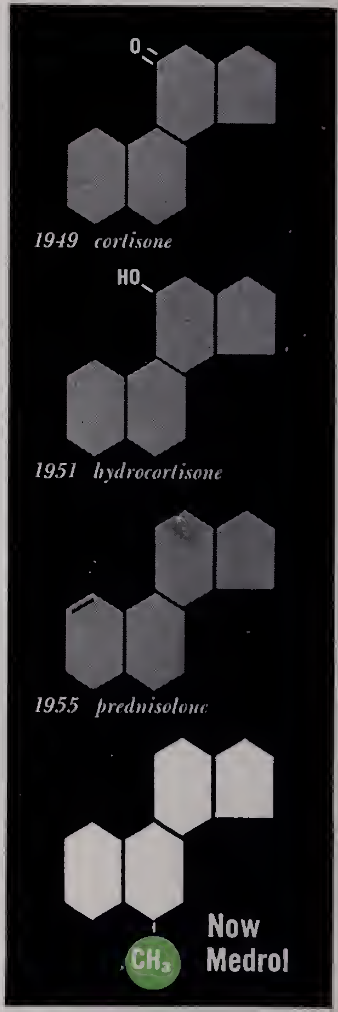

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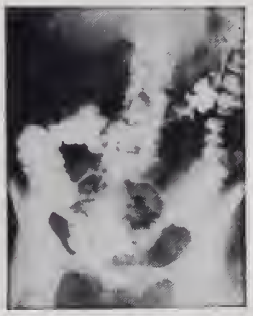
| Hyoscyamine Sulfate . . . . | 0.031 mg. |
| | plus |
| Prophenpyridamine Maleate . . | 12.5 mg. |
| Phenylephrine Hydrochloride . | 10.0 mg. |

when anxiety and tension "erupts" in the G. I. tract...

in spastic and irritable colon



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*Combines* Meprobamate (*400 mg.*) the most widely prescribed tranquilizer... helps control the "emotional overlay" of spastic and irritable colon—without fear of barbiturate loginess, hangover or habituation ... *with* PATHILON (*25 mg.*) the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

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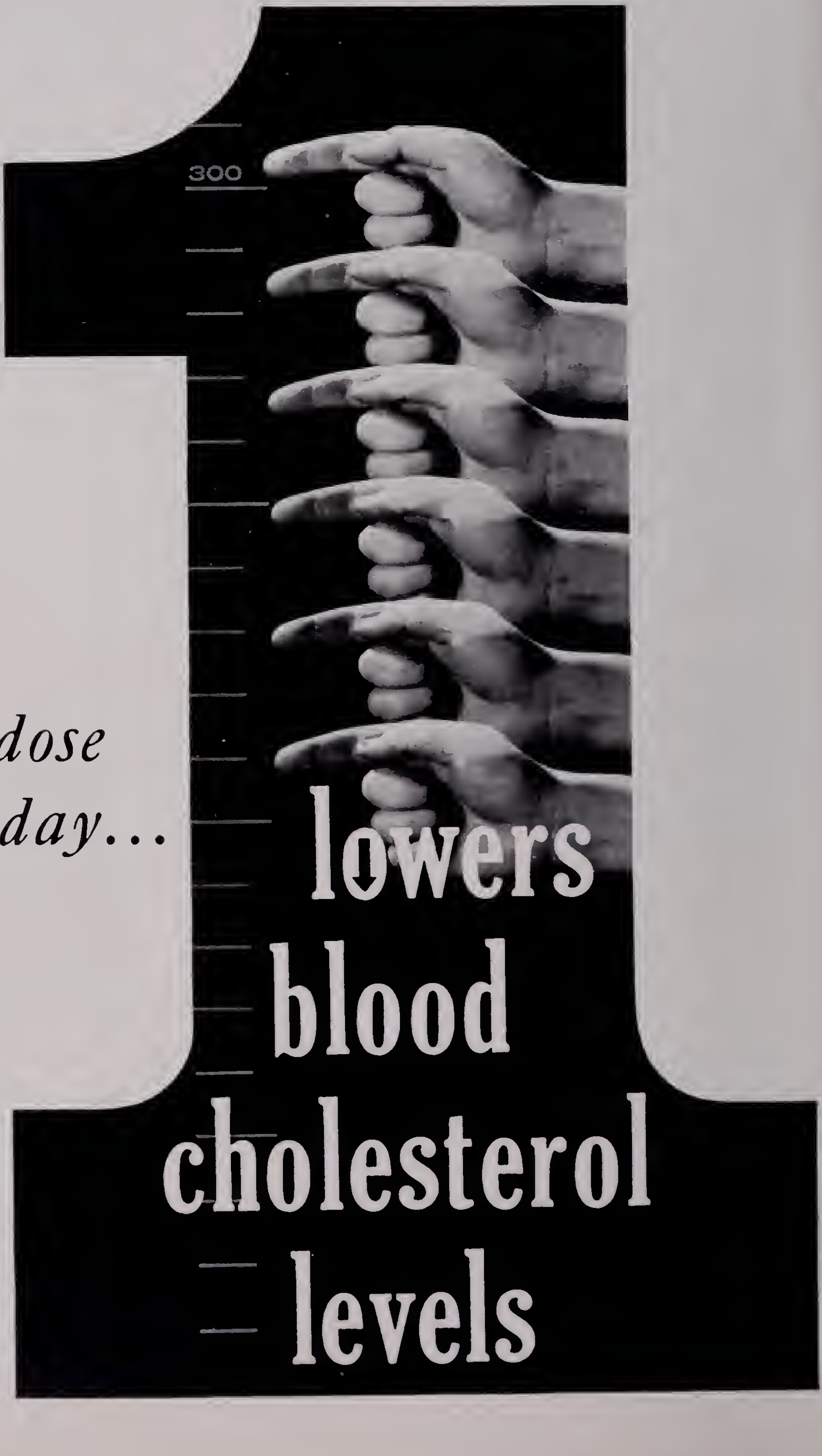
*one dose a day...*



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a new practical
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**Just one dose a day effectively lowers elevated blood cholesterol**

**. . . while allowing the patient to eat a balanced . . . nutritious . . . and palatable diet**

Each tablespoonful of emulsion contains:

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| Linoleic acid.................. | 6.8 Gm. |
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(sodium benzoate as preservative)

Arcofac is effective in small doses and is reasonable in cost to the patient

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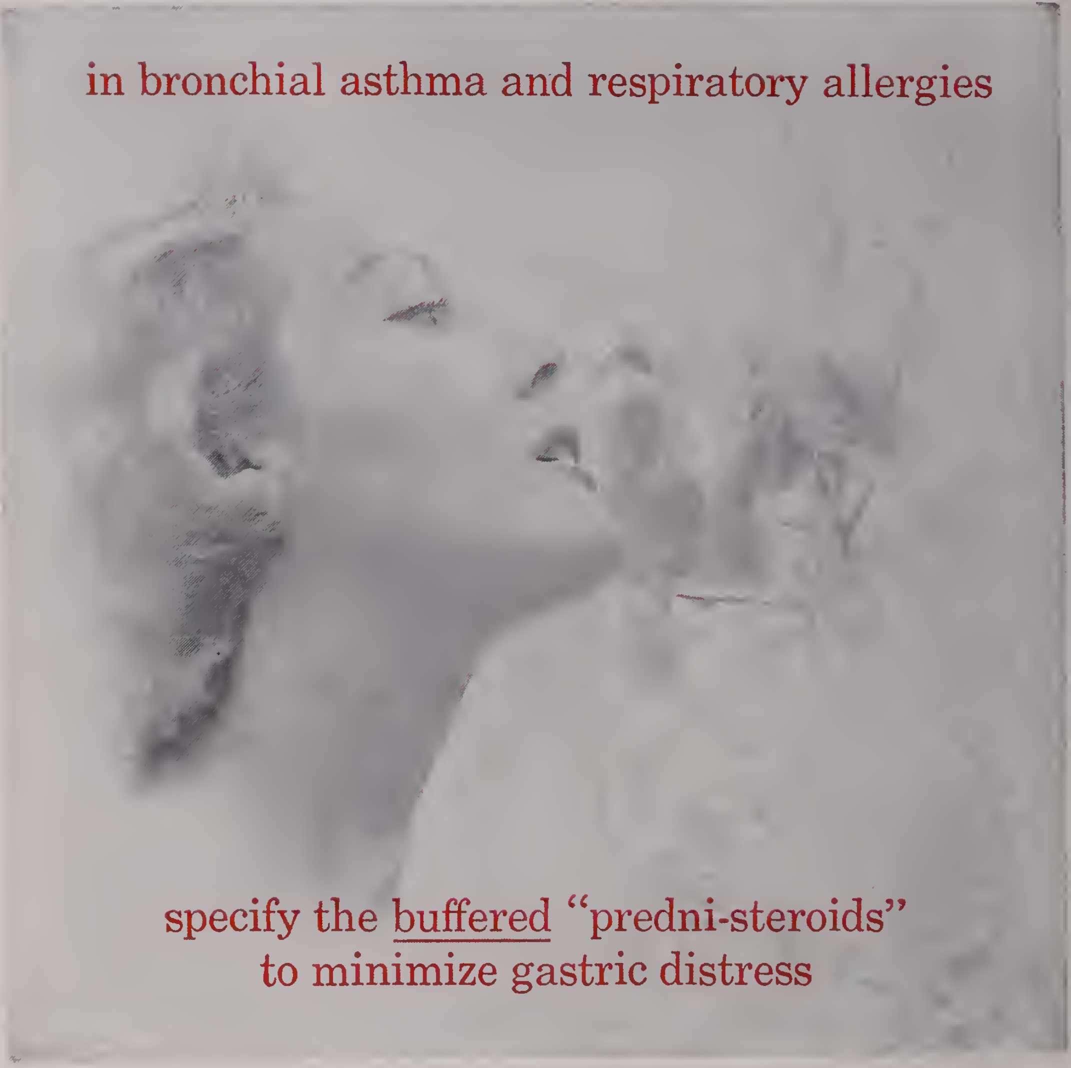
Armour...Cholesterol Lowering...Factor


in bronchial asthma and respiratory allergies
specify the buffered "predni-steroids"
to minimize gastric distress

*combined steroid-antacid therapy . . .* **Co-Deltra®**

(Prednisone buffered)

**Co-Hydeltra®**

(Prednisolone buffered)

'Co-Deltra' or 'Co-Hydeltra' provides all the benefits of "predni-steroid" therapy and minimizes the likelihood of gastric distress which might otherwise impede therapy. They provide easier breathing—and smoother control—in bronchial asthma or stubborn respiratory allergies.

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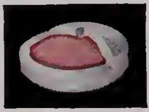

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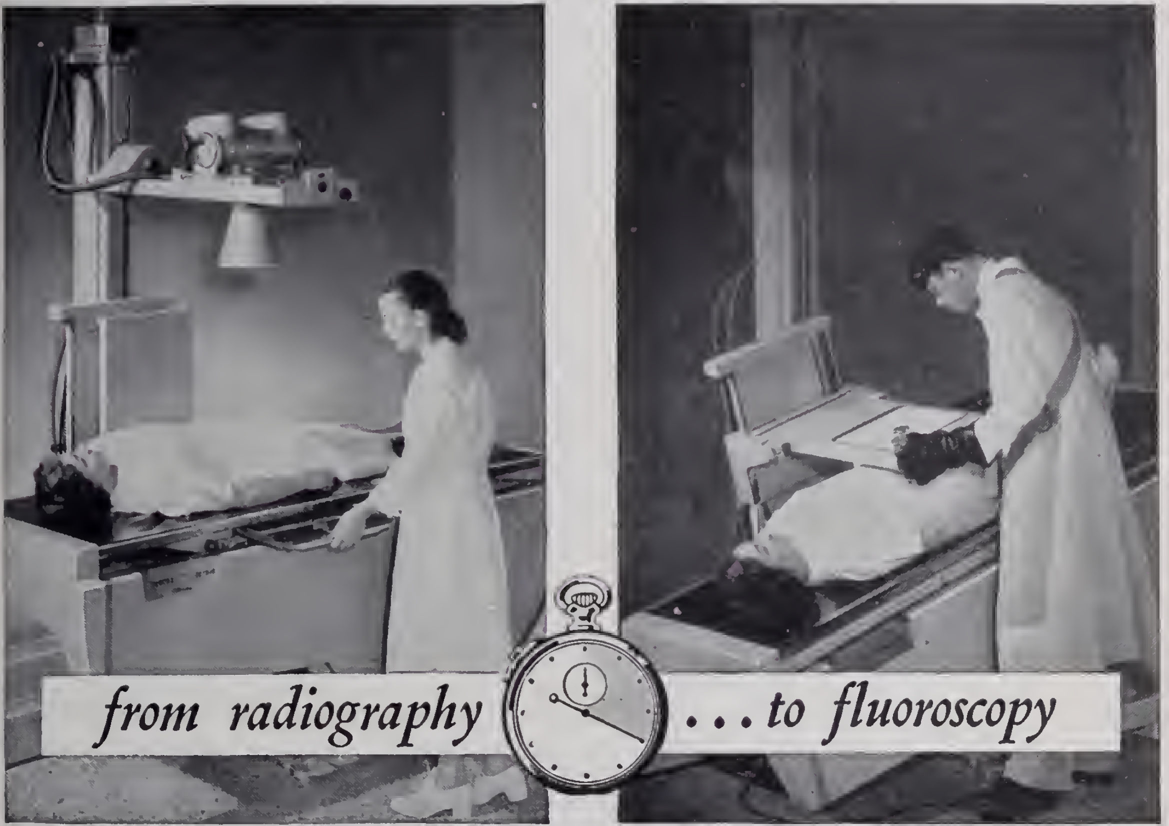

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- floods tissues quickly, evenly
- compatible with ocular tissues and fluids
- eliminates cross contamination
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***supplied:***

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*unsurpassed in antibiotic efficacy*

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Patent Applied For

## ST. FRANCIS HOSPITAL ISSUE

# DELAWARE STATE MEDICAL JOURNAL

*Official Organ of the Medical Society of Delaware*
INCORPORATED 1789

VOLUME 29 NOVEMBER, 1957 NUMBER 11

## SYMPOSIUM ON CANCER

Complete Contents on Page iv

Program, Annual Meeting D.A.G.P. page 291

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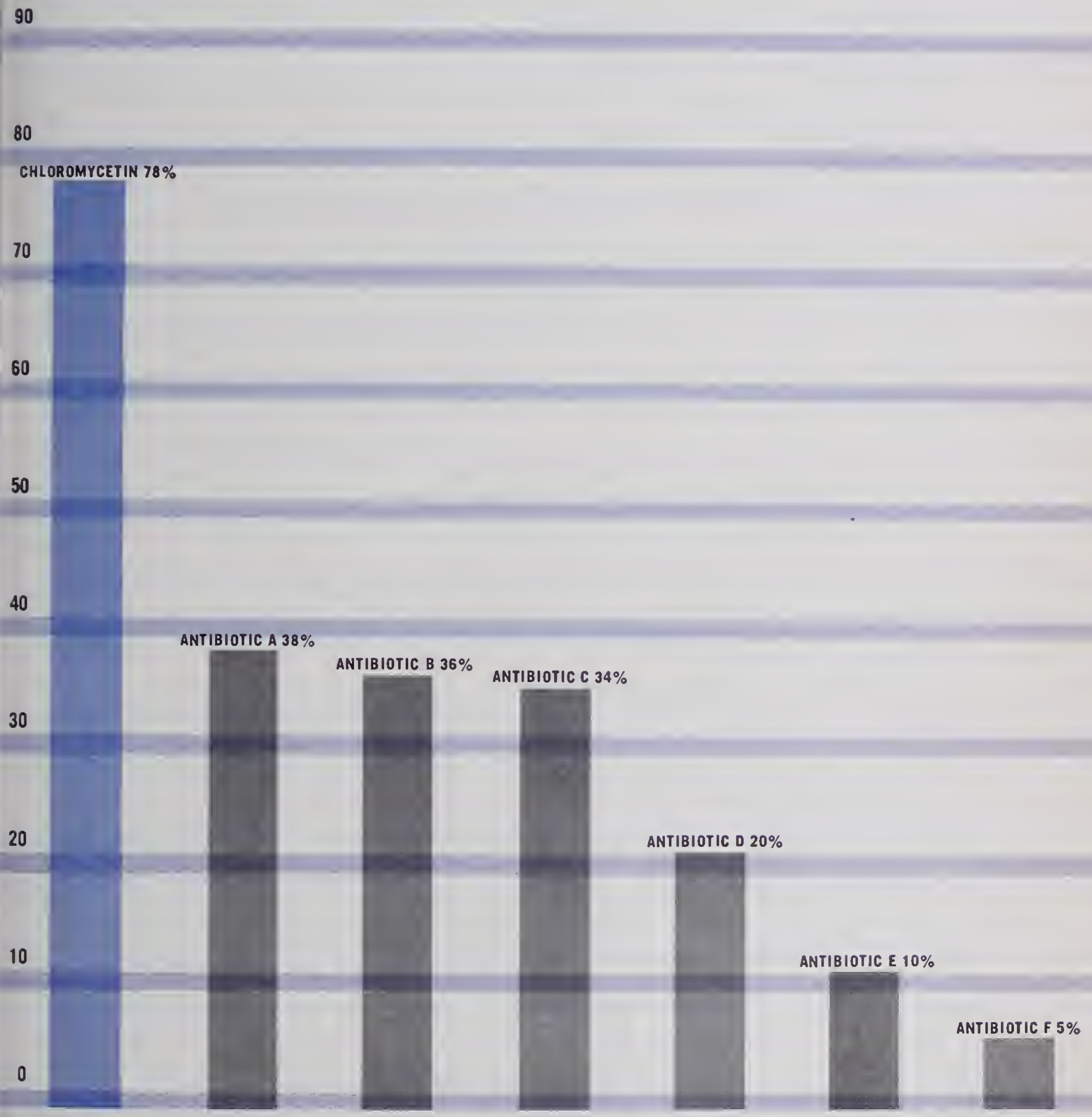
## COMPARATIVE SENSITIVITY OF MIXED PROTEUS SPECIES TO CHLOROMYCETIN AND SIX OTHER WIDELY USED ANTIBIOTIC AGENTS*



*This graph is adapted from Waisbren and Strelitzer.[15] It represents *in vitro* data obtained with clinical material isolated between the years 1951 and 1956. Inhibitory concentrations, ranging from 3 to 25 mcg. per ml., were selected on the basis of usual clinical sensitivity.

## DELAWARE STATE MEDICAL JOURNAL

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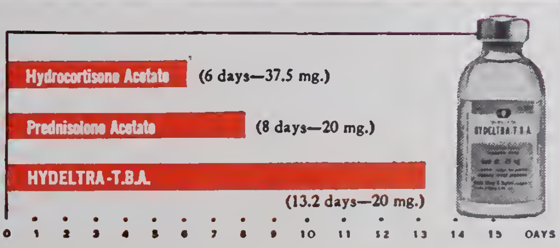

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isms and 40 infections [respira-
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ive organisms are very encour-
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n, H.: Antibiotic Med. & Clin.
py 4:174 (March) 1957.

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Levi, W. M., and Kredel, F. E.: J. South Carolina M. A. 53:178 (May) 1957.

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Winton, S. S., and Chesrow, E.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 55.

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LaCaille, R. A., and Prigot, A.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 67.

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Frank, L., and Stritzler, C.: Antibiotic Med. & Clin. Therapy 4:419 (July) 1957.

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Loughlin, E. H., and Mullin, W. G.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 63.

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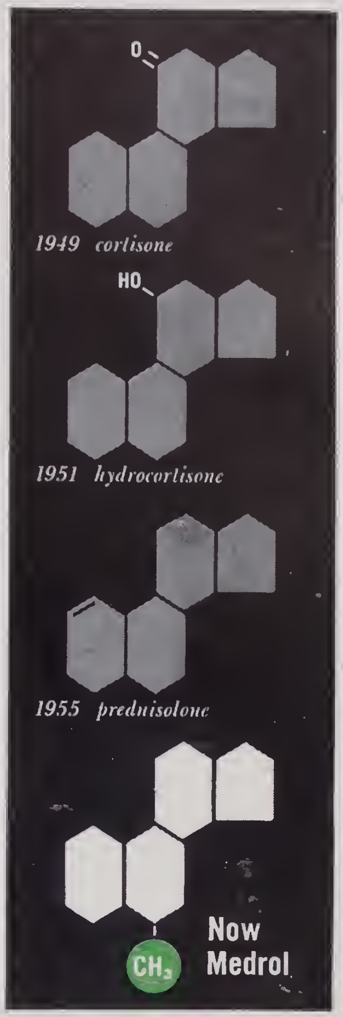

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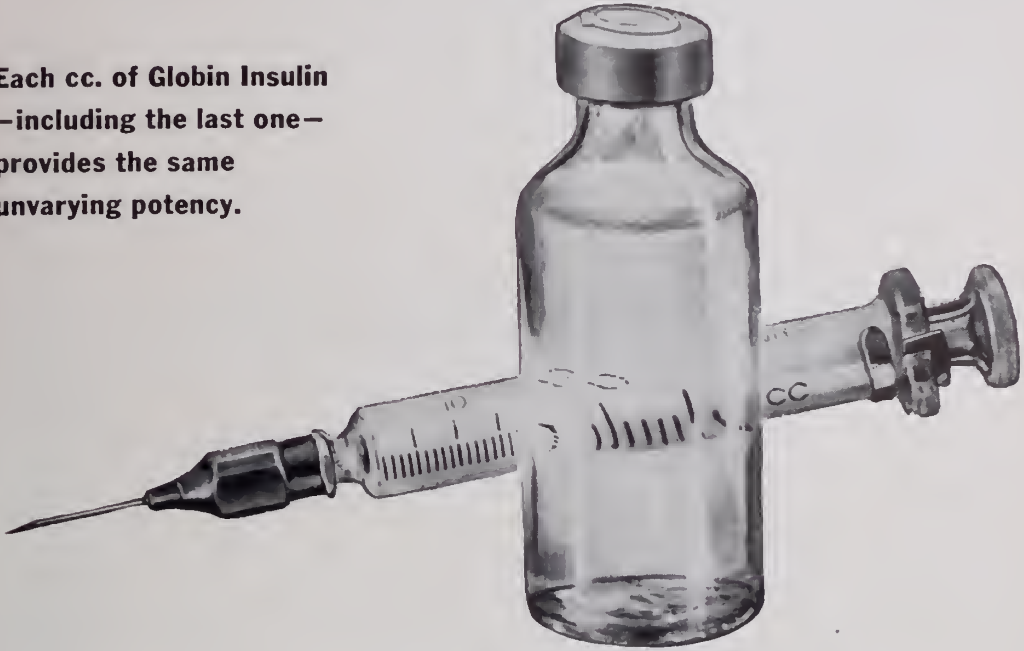

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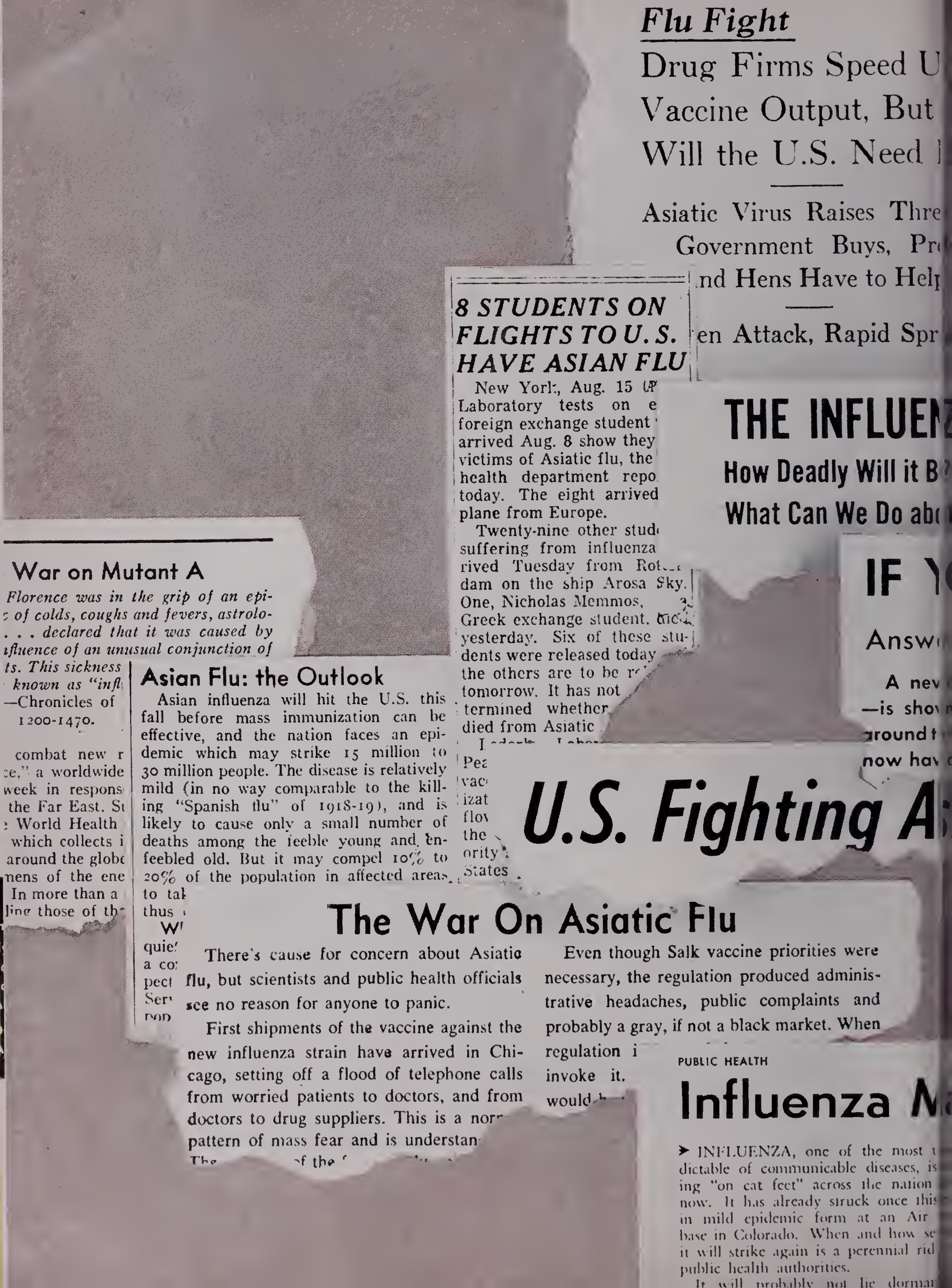

## *Flu Fight*

## Drug Firms Speed U
## Vaccine Output, But
## Will the U.S. Need

Asiatic Virus Raises Thre
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## *8 STUDENTS ON FLIGHTS TO U. S. HAVE ASIAN FLU*

New York, Aug. 15 (P
Laboratory tests on e
foreign exchange student
arrived Aug. 8 show they
victims of Asiatic flu, the
health department repo
today. The eight arrived
plane from Europe.

Twenty-nine other stud
suffering from influenza
rived Tuesday from Rot
dam on the ship Arosa Sky.
One, Nicholas Memmos,
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yesterday. Six of these students were released today
the others are to be r
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## THE INFLUE

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## *U.S. Fighting A*

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## War on Mutant A

*Florence was in the grip of an epi-*
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## Asian Flu: the Outlook

Asian influenza will hit the U.S. this fall before mass immunization can be effective, and the nation faces an epidemic which may strike 15 million to 30 million people. The disease is relatively mild (in no way comparable to the killing "Spanish flu" of 1918-19), and is likely to cause only a small number of deaths among the feeble young and enfeebled old. But it may compel 10% to 20% of the population in affected areas
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## The War On Asiatic Flu

There's cause for concern about Asiatic flu, but scientists and public health officials see no reason for anyone to panic.

First shipments of the vaccine against the new influenza strain have arrived in Chicago, setting off a flood of telephone calls from worried patients to doctors, and from doctors to drug suppliers. This is a nor
pattern of mass fear and is understan

Even though Salk vaccine priorities were necessary, the regulation produced administrative headaches, public complaints and probably a gray, if not a black market. When
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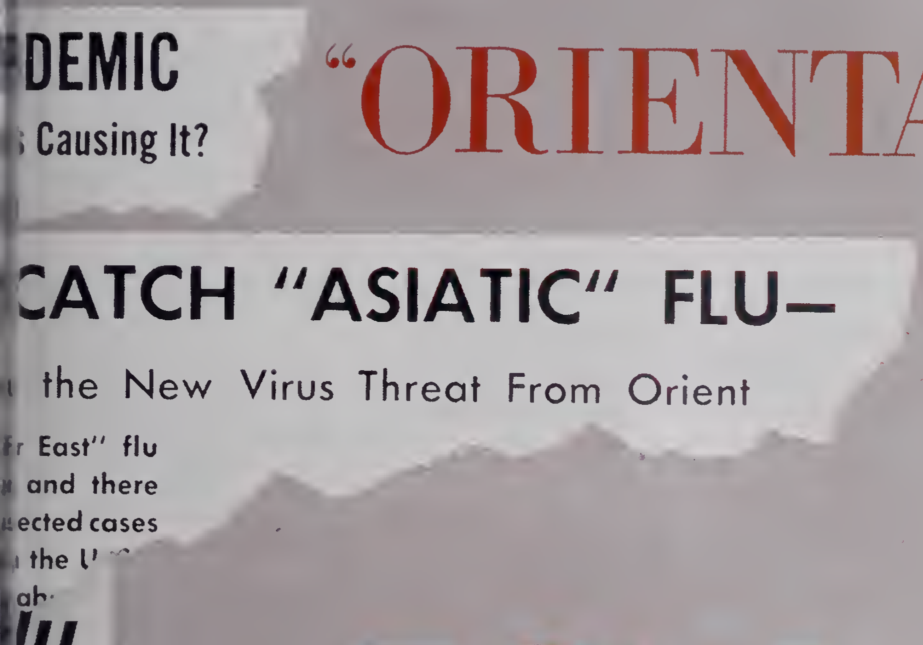
PUBLIC HEALTH

## Influenza M

➤ INFLUENZA, one of the most
dictable of communicable diseases, is
ing "on cat feet" across the nation
now. It has already struck once this
in mild epidemic form at an Air
base in Colorado. When and how se
it will strike again is a perennial rid
public health authorities.

It will probably not lie dorma

to counteract complications from "ORIENTAL FLU"


DEMIC

Causing It?

CATCH "ASIATIC" FLU—

the New Virus Threat From Orient

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Erythrocin

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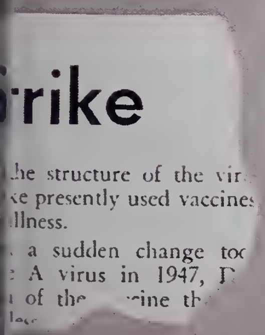
**effective against staph-, strep- and pneumococc**

Abbott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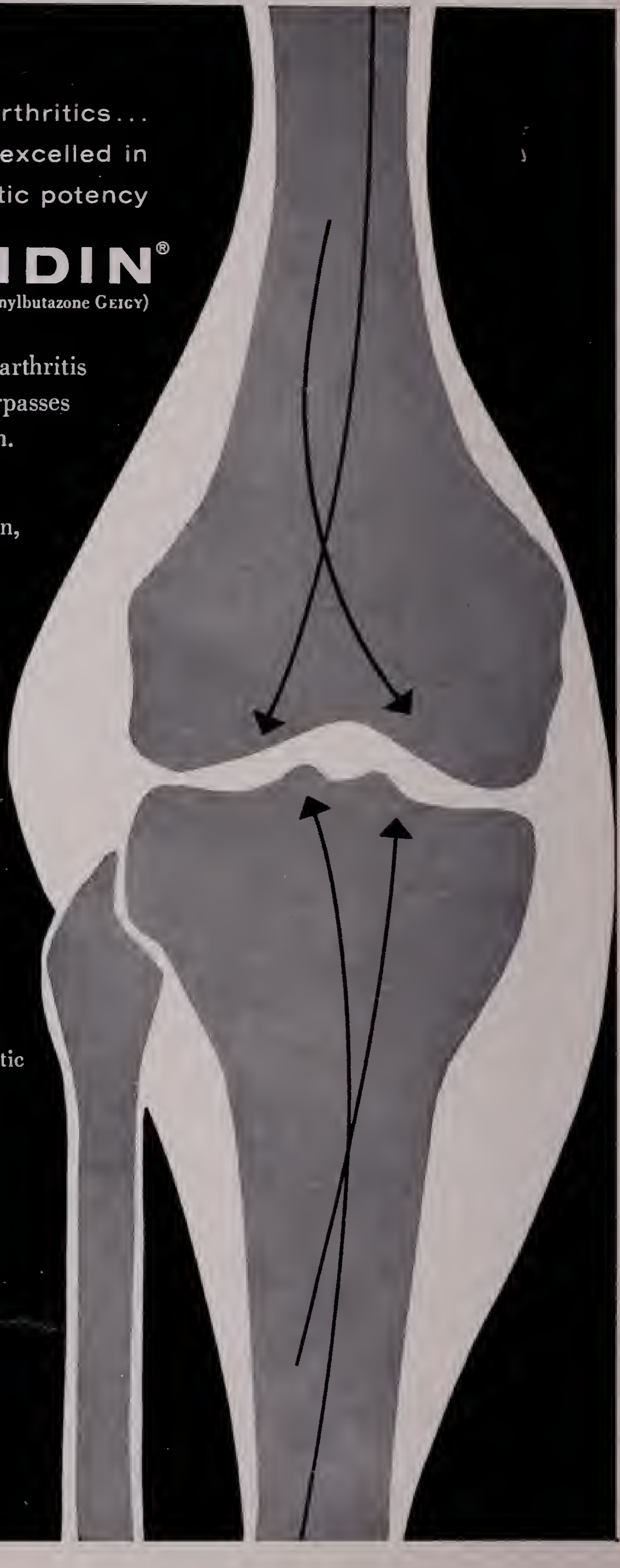

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gr. ½

gr. ¼

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| | |
|---|---|
| Codeine Phosphate . . . . . . . . . . . . . . . . | gr [illegible] |
| Phenobarbital . . . . . . . . . . . . . . . . . . | gr [illegible] |
| Acetophenetidin . . . . . . . . . . . . . . . . . | gr. [illegible] |
| Aspirin (Acetylsalicylic Acid) . . . . . . . | gr [illegible] |

## CODEMPIRAL'® NO. 2*

| | |
|---|---|
| Codeine Phosphate . . . . . . . . . . . . . . . . | gr [illegible] |
| Phenobarbital . . . . . . . . . . . . . . . . . . | gr [illegible] |
| Acetophenetidin . . . . . . . . . . . . . . . . . | gr [illegible] |
| Aspirin (Acetylsalicylic Acid) . . . . . . . | gr. 3[illegible] |

*...from pain of muscle and joint origin, simple headache, neuralgia, and the symptoms of the common cold.*

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|---|---|
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|---|---|
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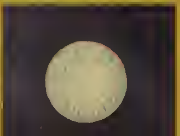
| Aspirin (Acetylsalicylic Acid) . . . . . . . | gr. 3½ |



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|---|---|
| Achromycin® Tetracycline equivalent to tetracycline HCl | 125 mg. |
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| Salicylamide | 150 mg. |
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| Pyrilamine Maleate | 15 mg. |
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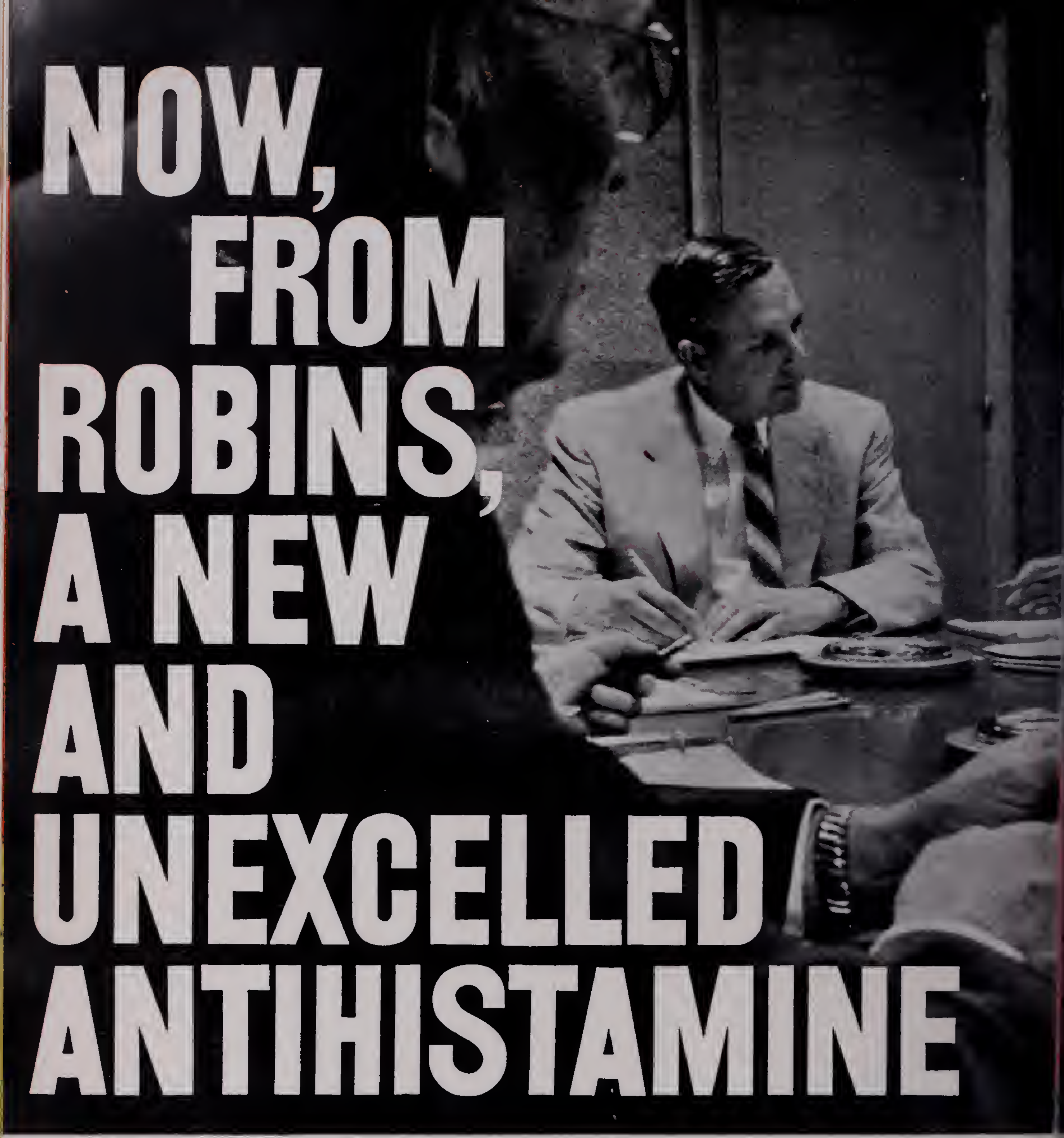

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| Diagnosis | No. of Patients | Response | | | | Side Effects |
|---|---|---|---|---|---|---|
| | | Excellent | Good | Fair | Negative | |
| Allergic rhinitis and vasomotor rhinitis | 30 | 14 | 9 | 5 | 2 | Slight Drowsiness (3 |
| Urticaria and angioneurotic edema | 3 | 1 | 1 | 1 | | Dizzy (1) |
| Allergic dermatitis | 2 | | 1 | 1 | | Slight Drowsiness ( |
| Bronchial asthma | 1 | | 1 | | | |
| Pruritus | 1 | | 1 | | | |
| Total | 37 | 15 | 13 | 7 | 2 | Drowsiness (5)<br>Dizzy (1) 16.2 |

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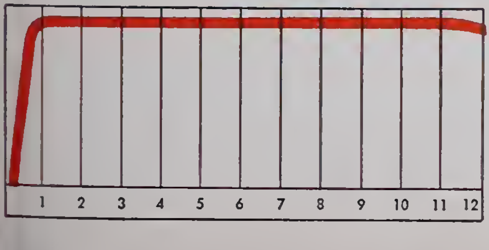

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DELAWARE STATE MEDICAL JOURNAL

*Issued Monthly Under the Supervision of the Publication Committee*
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VOLUME 29 NOVEMBER, 1957 NUMBER 11

# CARCINOMA OF THE ESOPHAGUS

FRANK T. O'BRIEN, M.D.

"Too little, too late!" so frequently is the story regarding the diagnosis and treatment of carcinoma. This is doubly true in the case of esophageal cancer. What can we do in an attempt to correct this situation?

Many times the original complaint in the history will point to the offending lesion. It is of importance that the patient's statements be accurately evaluated, keeping in mind the possibility of malignant disease. The patient with dysphagia frequently adds "red herrings" to dissuade the physician from a logical train of subsequent studies. A few of these include: 1.) neurotic tendencies, 2.) emotional insecurity, 3.) hysteria —globus hystericus, 4.) "nervous stomach", 5.) indigestion, 6.) specific food allergy, 7.) poor dentures, 8.) overwork, 9.) sinusitis with "post-nasal drip", 10.) drinking bouts and excessive smoking. There is, no doubt, a host of others. To maintain the original study plan for diagnosis in such cases is sometimes difficult and as a result, time is wasted. The patient who, earlier, may have had a chance for a *cure* becomes a possible candidate for a palliative procedure.

The salvage rate for carcinoma of the esophagus is very low. This should not be a rule of thumb for treating a patient as a statistic; every case must be evaluated on its merits. The shrunken, emaciated, poor risk individual, oftentimes has a resectable neoplasm. If the first examining physician considers the possibility or at least has a suspicion of carcinoma and follows through with a barium swallow and esophagoscopy, the five year survival rate for carcinoma of the esophagus would not be so appallingly low. The patient with dysphagia should be investigated immediately. Delay results in a regrettable outcome.

The case in point is that of a 73 year old white man who presented himself to his family physician in September, 1956, because of dysphagia and regurgitation after swallowing. He was hospitalized September 6, 1956, for evaluation. The history dated back four months prior to admission when he noted that solid foods would occasionally "stick in his gullet". This condition seemed to get progressively worse until admission at which time all foods had to be semi-liquid. He suffered no pain, but thought he might have lost some weight. Physical examination revealed an elderly, thin, white male in no distress. All findings were within normal limits except for poor oral hygiene, liver palpable one finger breadth below the right costal margin, and a right inguinal hernia—maintained in reduction by a truss. (This had been present for 30 years.) His hemogram showed a 79% hemoglobin, RBC 3.8 million, WBC 10,150 with a normal differential count. His hematocrit was 42%.

On x-ray examination, the patient was given a barium capsule which passed to a point just below the arch of the aorta where it remained in a relatively fixed position for a period of time, then dissolved and passed into the stomach. He was given thick barium paste to outline the esophagus; this showed an obstruction below the arch of the aorta. The involved area measured 4 cm. in length. On the lateral film, the level of the obstruction was noted to be at the 7th thoracic vertebra. This is seen in Figure 1. Actually, it is between the 7th and 8th thoracic vertebrae. Chest films, both PA and lateral views, showed the diaphragms to be at normal levels.

On September 10th, an esophagoscopy was performed; this revealed complete ob-

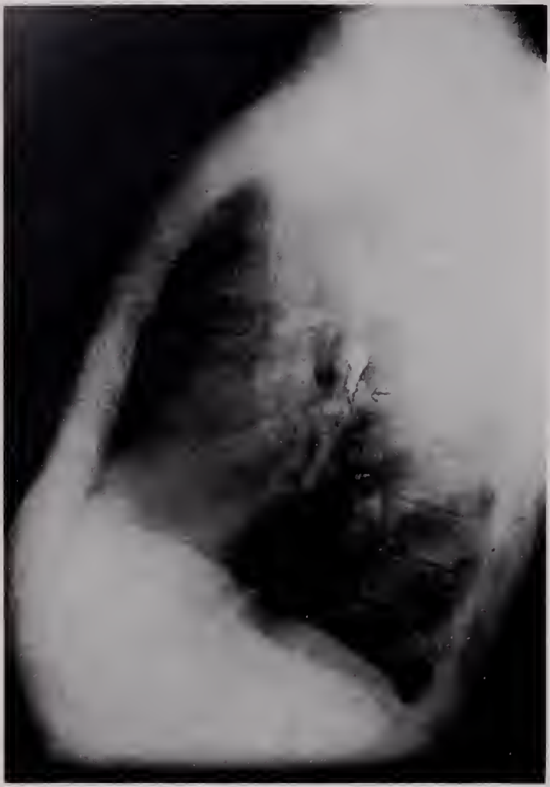

Figure 1

Barium Swallow performed on a 73-year-old white male. Obstructing esophageal carcinoma pointed out in the middle third of the esophagus.

struction approximately 30 cm. from the superior alveolar ridge. From this site, a biopsy was taken of protruding mucosa; no definite tumor mass could be visualized. The microscopic section of this tissue showed abnormal epidermoid cells, not conclusive of neoplasm.

Because of the persistence of the obstruction and the mounting evidence in favor of carcinoma, the patient underwent an esophagectomy on September 17, 1956. This was done via the right-sided approach, first opening the thorax and freeing up the entire esophagus to approximately four inches above the lesion, ligating the azygos vein and dissecting down the entire length of the thoracic esophagus to the hiatus. The patient was then turned and the abdomen entered. Some difficulty was encountered in mobilizing the stomach because the omentum was fixed in the right inguinal hernia. It was necessary to ligate the omentum, leaving a small portion of it in the hernia before continuing the mobilization of the stomach. The stomach was amputated from the esophagus and the esophageal-cardia junction closed. The stomach then was threaded through the diaphragmatic hiatus and brought up into the right chest, where it was anastomosed to the proximal esophagus four inches above the offending lesion.

Because of the ligation of both vagus nerves, it was necessary to keep a Levin tube in the stomach for approximately one week in order to prevent gaseous distention of the narrow thoracic stomach. The patient was discharged from the hospital on his tenth post-operative day. He was completely asymptomatic and was able to eat a regular diet without difficulty.

The pathological report on the tissue was epidermoid carcinoma of the esophagus. The tumor extended into the muscular coat, but did not, either grossly or microscopically, extend to the outer limits of the esophageal musculature or to the limits of the

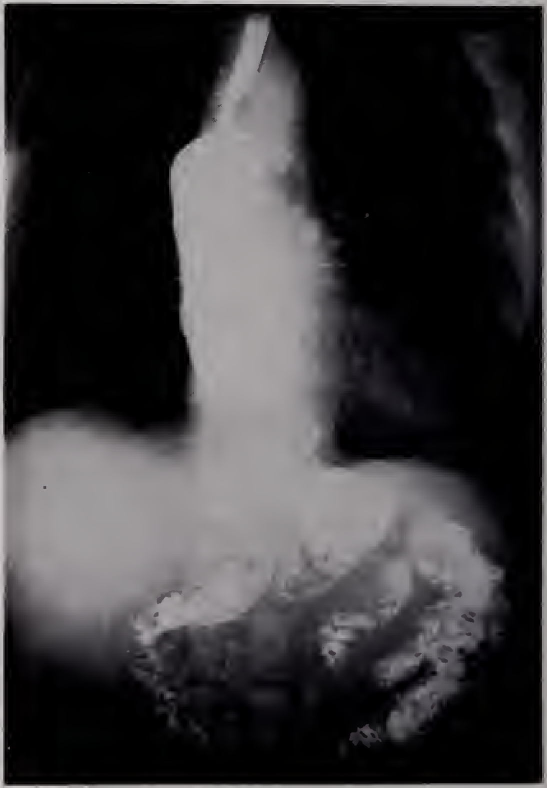

Figure 2

Barium Swallow two weeks following esophagectomy. One stage subtotal esophagectomy performed via the right thorax and mid-abdominal routes. Patient asymptomatic one year postoperatively.

resection. It was thought that the resection was adequate. Figure 2 shows a post-operative barium swallow. The stomach is seen high in the chest.

One year post-operatively, the patient is doing well. He has no complaints referable to his operative site, no dysphagia; he has gained weight and has returned to his normal way of life. He still wears a truss for his right inguinal hernia. It is much too early to suggest a cure, but certainly his palliation has been rewarding.

This case is worthy of presentation because it points out that where there is no delay, the outcome is sometimes favorable. The fact that the time involved between his first visit to his local physician and his hospital discharge was less than thirty days, is an achievement worth recording, particularly for an individual in this age group.

## Discussion

The remarkable courage of the great surgeons who attacked this neoplasm can only be viewed with inspiration and respect. The names of Bilroth, Czerny, von Mikulicz and others are mentioned in the historical background. The first successful esophagectomy in this country was reported by Franz Torek in 1913. The patient was 69 years of age when she submitted to the extirpation of her entire thoracic esophagus. She died at the age of 83 of other causes. This particular operation has been revised and readvocated by Watson; instead of leaving an esophageal fistula and gastrostomy, he fashions an anterior esophagus (substernal) using the right colon.[1] This type of procedure is comparable to that outlined by Lewis in 1946, for growths in the middle third of the esophagus.[2] The one-stage resection and reconstruction for growths of the mid-esophagus was thought feasible and was performed in this country by MacManus. In 1956, MacManus, Paine, Dunn, and Merdinger reported on 138 cases of carcinoma of the esophagus. Of this series, 115 were operated upon; 64 lesions were resected (55.6%); 15 patients died before leaving the hospital (23%); and 5 lived over five years.[3] This series included the cardia of the stomach which may have bolstered the survival rate. MacManus pointed out that "Our obligation to the cancer patient should not be confined to our efforts to cure him. Where cure may not be possible, palliation should be our goal and is often sufficient justification for a properly conceived and well executed operation." Thus the bypass operation using the right colon and leaving the inoperable carcinoma in situ may offer palliation that would otherwise be wanting.

The Tumor Registry of the State of Delaware reported thirty cases for the three year period of 1954 through 1956.[7] No study of statistical significance could be made from such a small series. Of the cases reported, the average age was 62 years. The ratio of males to females was almost equal.

Watson and Goodner reviewed 1250 cases from the Memorial Hospital in New York.[4] This covered a period from 1931 to 1955 (25 years). Only 17 cases survived five years or more. Seventy-seven cases received surgery alone with a 4% survival. 929 of the series received radiation alone with a 0.65% five year salvage rate. 39 patients received both surgery and radiation with a 7.7% five year survival. This report shows that carcinoma of the esophagus is not a rare disease, probably about 4% of all gastrointestinal malignancies. The upper third is involved in about 20% of cases, the middle third in 37% and the lower third in the remaining 43%. It occurs more frequently in males. This lesion seems to be increasing in women, however, and at the present time the ratio is 9 to 1. Involvement in women is usually in the upper third and the age group younger. (The author saw one female, age 34, with a tracheo-esophageal fistula due to carcinoma of the esophagus.)

## Diagnosis

A transient dryness or tickling in the throat frequently precedes minimal dysphagia. The suspicious physician when the patient first presents himself with dysphagia can prevent him from becoming another fatality through early study. A barium swallow and esophagoscopy should be considered early. Tissue biopsy by esophagoscopy is positive in 80% of these cases. The differential diagnosis must include:

1. Foreign body in the esophagus (meat, vegetables, etc.)
2. Tuberculosis of the esophagus (quite rare)
3. Luetic esophagitis (rare)
4. Plummer-Vinson syndrome (frequently anemia and other symtoms are present)
5. Extrinsic pressure (goiters, tumors of the trachea, tumors of the mediastinum, aortic ring)
6. Peptic esophagitis (common in emotional states)
7. Cardiospasm—achalasia
8. Diverticulum of the esophagus
9. Diaphragmatic hernia

Nakayama uses radioactive phosphorus to aid in the differential diagnosis of esophageal carcinoma.[8] He claims that 96% of cases could be diagnosed correctly by giving the patient radioactive phosphorus which is concentrated in the neoplastic cells. Then a definite response is measured by a counter which is inserted via gastric tube. Nakayama is a famous surgeon and will, no doubt, add a great deal to solution of this problem. (Esophageal carcinoma is most commonly found in the Japanese male.)

## RESECTION

Whether or not the lesion is operable cannot be determined by esophagoscopy or x-ray so that most cases should have a bronchoscopic examination. Extension of the carcinoma into the surrounding structures makes resection impossible. Bronchoscopic examination may show an ingrowth of the tumor or a fistula from the esophagus. The presence of a Horner's syndrome, the destruction of a thoracic vertebra, metastatic deposits in the lung fields make for a poor prognosis. At the time of operation, fixation of the growth to the aorta, trachea or pulmonary vessels may deter all but a palliative procedure. This is also true when the liver, peritoneal cavity (Blumer's shelf) and abdominal lymph nodes are discovered to be involved.

This carcinoma occurs most commonly in the normally narrowed areas of the esophagus. Thus, trauma may play a part at the thoracic inlet, the aortic arch and at the diaphragm (outlet). The bolus of food seems to strike these three areas as it is propelled into the stomach. The type of carcinoma is either epidermoid or adenocarcinoma. Since the lower third is the common site of adenocarcinoma of the esophagus one cannot determine whether the growth originated in the stomach or from the esophageal glands of the lower esophagus.

Esophagectomy is indicated whenever a malignant lesion of the esophagus is found to be resectable. This should be performed regardless of the age, sex, or degree of inanition. If resection is impossible a bypass procedure should be planned for palliation. The ability to swallow affords much comfort to the patient.

## SUMMARY

1. Carcinoma of the esophagus still carries a formidably high mortality.
2. Age and debilitation should not deter our surgical intervention.
3. The case of a 73 year old male was presented (asymptomatic one year postoperatively).
4. Historical note with other clinical statistics were presented.
5. Prompt investigation of *dysphagia* was stressed.

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# THE DIAGNOSIS AND TREATMENT OF CARCINOMA OF THE CERVIX IN SITU*

RICHARD C. HAYDEN, M.D.,** MORTON KEYSER, M.D.,***
and JOSEPH W. ABBISS, M.D.****

DR. R. C. HAYDEN:

Carcinoma in situ of the cervix is one type of cancer that can be cured if detected and treated early. By definition, carcinoma in situ means localized cancer without invasion into the lymph glands, blood stream, or deeper tissues.

The histology of the cervix shows the basement membrane to be intact in carcinoma in situ. As long as this basement membrane is intact, even though you have all the criteria present here for malignancy, such as mitosis, hyperchromatosis, distortion of normal cell pattern, and so forth, you can still call that a carcinoma in situ, or carcinoma in place: it hasn't invaded. There are various names for it: interstitial carcinoma, Bowen's disease of the cervix, precancerous cervical lesion.

Once it has invaded through the basement membrane, it is invasive cancer. The main question in diagnosis: is this lesion actually a precancerous lesion or already invasive cancer? That is a debatable point between many cytologists, gynecologists and pathologists throughout the world. Actually, TeLinde and his group feel that it is a definite forerunner of actual invasive cancer. The average age that they've found carcinoma in situ is 35 years. The average age at which actual invasive cancer is present is about 45 to 49 years, so that there is usually a latent period of 10 years before a preinvasive cancer will develop into invasive cancer, if this hypothesis holds true.

Other men deny that there is any such relationship between carcinoma in situ and actual invasive cancer. The only way we can prove this point is to allow certain patients who have carcinoma in situ to be followed over a period of time and show that it does develop into a malignant or an invasive lesion. That would have to be 100% true to be accurate. Actually, that has been done by one doctor in Norway, who has found that 26% of the patients he has allowed to go along with the carcinoma in situ have eventually developed invasive carcinoma, after five and twelve years duration. Other men have found that it hasn't worked out this high while others have even higher results. He's the only individual who has carried over 100 patients along with carcinoma in situ.

Naturally, the majority of men will treat their patients definitively, rather than do any experimental work along this line. The question of what methods we have for diagnosis is very important. You are all familiar with the vaginal smear, the cytology method developed by Papanicolaou. This is extremely important in carcinoma of the cervix because it is the one place in the entire body where we can pick up a potentially malignant, or an actually malignant, lesion by cytological examination.

The main difficulty has been in past years that there are very few trained cytologists in this country. In other words, a man has to take years probably, just as he would in pathology, to be a cytologist. However, with the actual experience being improved every year, we're making more and more early diagnoses of cancer of the cervix, especially the carcinoma in situ.

There are different stages of the smears that are taken, and these are graded accordingly. Dr. Abbiss will probably speak about those. They run from Class I to Class V. It is not a 100% diagnostic method, and never should be because it is only a screening method. Let's say if we had a thousand women in this community who we wanted to run through for a test for cancer of the cervix, the vaginal smear or cytology smear would be an excellent method of screening the population. If they are positive, then further diagnostic methods should be used. One of the most important, and often neglected, has been the old Schiller test.

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* Symposium held at the St. Francis Hospital, March 19, 1957.

** Chief, Obstetrics and Gynecology.

*** Associate, Obstetrics and Gynecology.

**** Pathologist.

Schiller found that by staining the cervix with an iodine solution that he could show that the glycogens present would absorb the iodine and take a mahogany stain. Most of the cervix is rich in glycogen; however, where there is a cancer present, the mahogany stain is not taken up. However, that has been proved false: any erosion of the cervix, any leukoplakia or any disturbance of the glycogen content present in the cervix will not take up the mahogany stain. Nevertheless, its main value is that it will show you where to biopsy the cervix, and this test should be used routinely in cancer clinics today. The cervix is painted with iodine solution and then the biopsy is taken where the stain is shown not to be present.

Another diagnostic test of questioned value is colposcopy. Hinselman, in 1925, developed a colposcope, not a culdoscope, with which you can look into the vagina. It magnifies the vaginal contents, the cervix, and the surrounding structures. The main importance of a culposcope is that it magnifies between ten and twenty times, and you can see many areas where there are leukoplakic changes going on, where there are eroded changes, and where there might be vascular changes that are not visible to the naked eye. Most clinics have discarded this test; however, the Jefferson group is very enthusiastic about it and use it as an adjunct in diagnosis.

The only true method, of course, of diagnosing any cancer, whether it is in situ or invasive cancer, is by biopsy, and no individual biopsy is 100% accurate. When you take a cervical biopsy, you should include the whole squamo-columnar junction in a circular fashion, and it usually should be done with a cold knife, rather than a cautery, because of the destruction of tissues by the cautery. When you take a punch biopsy, and the diagnosis comes back "carcinoma in situ", don't rely on that. There may be invasive cancer present unless you take multiple biopsies and do fairly good serial sections.

Suppose you do have a malignant smear. Let us say it shows a Class IV or Class V, and the cervix looks perfectly benign. Then you must think of endocervical cancer, and many times in your office you can do an endocervical curettage. The cervix may look perfectly healthy and benign, but by taking a little tissue with a curette you can pick this up and it is the same as a cervical biopsy. It will give you an actual pattern of tissue that you can look at under the microscope after it has been stained, so that the endocervical biopsy, along with the actual biopsy from the squamous part of the cervix, is the important part in the diagnosis of cancer.

Dr. J. W. Abbiss:

I am not quite sure what I should talk about because the gynecologists have already talked about nuclei, hyperchromatism, loss of polarity and invasion, so maybe I should talk about how to do a hysterectomy or some other such subject!

I think the subject of carcinoma in situ is a most fascinating one because here we are possibly — I do not say probably, or even certainly — looking at the earliest stages of cancer in an organ which is readily visible to us. I thought it would be interesting to illustrate some of the features of this particular lesion by making use of an actual case in my own recent experience and using some of the photo-micrographs taken from the material from this case.

I think one of the important things to remember about this type of lesion is the fact that it often occurs in a normal appearing cervix, or in one which shows what would ordinarily be considered to be a laceration or erosion. In other words, a clinically normal, or, shall we say, a benign-looking cervix. When one remembers that in these cervices the lesion may be extremely tiny, and by that I mean microscopic in size, it becomes a problem to know how we can detect this kind of lesion. The answer is by the means of the vaginal and cervical smear, and I might say a word or two about these first of all, although I do not propose to discuss them in detail.

At the outset I would like to take issue with Dr. Hayden. He said that a cytologist has to do considerable study "just like a pathologist". I would add to that and correct him by saying that the cytologist should be a pathologist first of all, because the pathologist is ideally suited to study the changes in cells, since a large part of his training is based on the study of cells. There are far too many half-baked "cytologists" around, with resulting false positive reports and all the attendant trouble and worry to the patient that goes with such a report. A well trained pathologist can learn cytology in about three months of intensive training. We can, however, train "screeners", laboratory technicians, to process the large number of normal smears, recognizing the abnormals and putting them aside for somebody who knows something about cells to study and give a final verdict on.

In reporting the smears it is usual to grade them according to the system of Dr. Papanicolaou, the grading being from Class I to Class V, and I think it might be useful just to indicate what these various classes mean. Class I means a completely normal smear, Class II that the cytologist has seen in that smear some abnormal cells but that he does not consider these cells to be of either suspicious or malignant type. There are many different underlying causes responsible for the presence of Class II abnormal cells in smears but the important thing to remember is that such a smear can be ignored as far as the possibility of malignancy is concerned although it may indicate some other condition present, such as infection which might require therapy. A Class III smear is one in which the cytologist sees cells which are not certainly malignant, but which he feels are suspicious of the condition, and such a classification means that the red light is flashing and that smear should be followed up by a biopsy. A Class IV smear is a little more advanced than a Class III, and it means that the cytologist has seen cells in that smear which he thinks are almost certainly malignant, but he is not ready to stick his neck out completely. A Class V smear means that the cytologist has committed himself completely and that he is convinced that the cells he sees are definitely malignant cells. All of this simply means that from a Class III on up through IV to V, the patient should have a biopsy, and I want to emphasize that a positive smear report, whether it be a Class III, Class IV or Class V, must always be confirmed by biopsy. I would like to hammer that point home. All cytologic studies which are positive must have a biopsy to confirm the diagnosis.

I would like to say, too, that malignant looking cells may occur in conditions other than malignancy. Cells of Class III or suspicious type are seen particularly in the patient who has severe trichomonas infestation, and they may be seen in pregnancy and in chronic inflammatory diseases of the cervix. Usually the abnormal cells in such cases fall into Class III or Class IV, and this again, simply goes to prove the point that we must do a biopsy to prove the diagnosis.

The usefulness of the vaginal and cervical smear technique in detecting carcinoma in situ is indicated by studies in which, if we take a series of patients having proven carcinoma in situ, that is, proven by biopsy, in 80% of these cases a positive smear report will have been returned from routine smears. If in such a series the smears are reviewed critically following positive diagnoses from biopsy it is found that something like 95% of the patients with proven carcinoma in situ will have Class III or higher smears.

The first slide tonight (figure 1.) is that of a photo-micrograph of a cervical smear taken from the patient I am using to illustrate some of my points. This patient, a 44-year-old woman, went to consult her gynecologist for a routine check-up, and he told me that she had a completely normal looking cervix, and subsequently I was able to confirm his impression in the surgical specimen. The routine smear taken from this patient showed the presence of Class III, or suspicious cells.

The slide (figure 1) shows a picture of this smear under low-power and the large cells shown in the photograph, particularly the large one with the huge nucleus, are the abnormal cells which were reported as Class III.

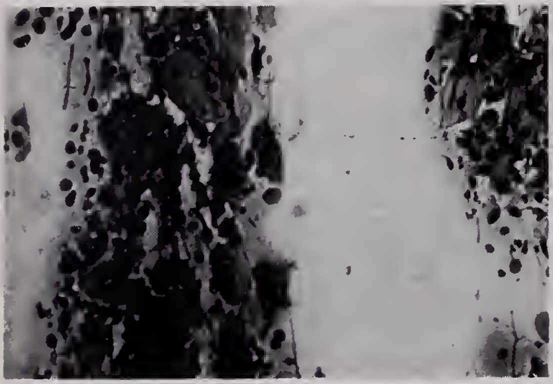

FIGURE 1
Low-power view of vaginal smear showing malignant cells.

The next slide (figure 2) is a high-power view of the same smear and shows the abnormal cells under higher magnification. It is not the point of this meeting tonight to go into cytologic details, suffice it to say that these cells are highly abnormal, they have big nuclei, one being especially large, and all of these cells show deeply staining abnormal nuclei with prominent nucleoli, these being some of the features which we classify as abnormal.

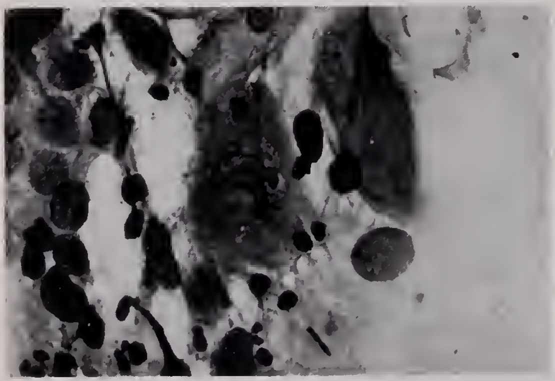

FIGURE 2
High-power view of field from figure 1 showing malignant cells in greater detail.

Following this report the gynecologist preformed a biopsy, and at this point I might say a word about the biopsy in such cases. This is the typical case of a patient who had a positive smear and a normal looking cervix. From what area are you going to take the biopsy? There is only one satisfactory answer, and that is that the biopsy must be taken from the entire area where this possible cancer might arise. It is known that the most likely place for an early cancer of the cervix to develop is exactly at the point where the squamous epithelium of the ectocervix meets the columnar epithelium of the endocervix, in other words, at the squamo-columnar junction. Since the lesion may be microscopic in size, it is not sufficient to take random punch biopsies around the cervix. To be absolutely sure, the whole of the squamo-columnar junction should be taken, and this means doing a ring biopsy, excising the whole of the area. The responsibility then passes to the pathologist, and he must not be satisfied with taking small snippets of tissue from the biopsy material. He must cut it up into small pieces, block out the entire material, and then cut multiple sections from each block. The ideal would be to prepare serial sections, of course, but in ordinary routine work this is not feasible from an economic point of view, and multiple sections from each block provide a satisfactory compromise, and will reveal most lesions.

What is carcinoma in situ? I can best define it by saying that it consists of a lesion in which morphologically malignant changes are confined to a surface epithelium. In other words, the pathologist is relating morphologic changes in the cells of non-infiltrating epithelium with the changes he sees in the cells of frank infiltrative carcinoma. Carcinoma in situ is a contradictory term in itself, because by the term "carcinoma" we imply invasion of tissue stroma. Now, in carcinoma in situ we say this is carcinoma confined to surface epithelium, or lining epithelium, so here we have a contradiction in terms. The term is a poor one but I think it is here to stay. Now, what are these morphologic changes? Well, they consist of changes both in the staining characteristics of nuclei, in the size and shape of nuclei, in the nuclear-cytoplasmic ratio, and in the relationship of cells within epithelium one to the other. The cells loose their normal relationships, this being referred to as loss of polarity. In squamous epithelium, the normal stratification, the normal maturing of the epithelium, is lost, and these changes are seen very well in the next slide showing material taken from the particular patient under discussion (figure 3).

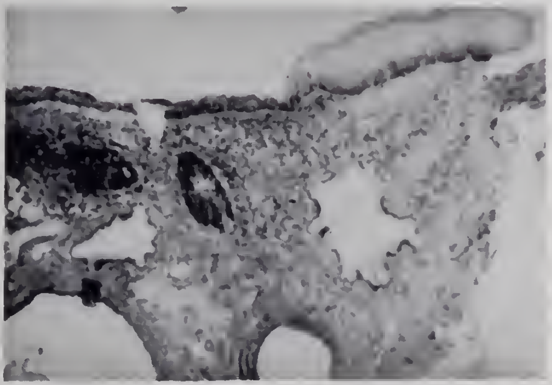

Figure 3

Low-power view of section of cervix showing normal squamous epithelium adjoining carcinoma in situ.

I have included in this section, as you can see, a piece of normal squamous epithelium from the cervix and in this the deeply staining cells of the basal cell layer can be seen, this is quite normal, the layer is an actively growing one and mitoses can be found there since the cells are reproducing, becoming more mature as they pass upwards towards the surface. In this process of maturation the nuclei become smaller, the cytoplasm of the cells becomes increased, and toward the surface the cells become cornified. In the section a sudden marked change in the appearance of the epithelium can be seen. The epithelium suddenly becomes much thinner and in this thinned epithelium the deeply staining cells are now seen at all levels from the basal cell layer to the surface, but you will notice that the lower limit of the epithelium is still definite and marked, being sharply demarcated from the underlying tissues, the cells in other words are confined to the surface. The astute observer, however, might say "Wait a minute, what is this down here?" These rounded clumps of deeply staining cells lying beneath the surface epithelium is definitely abnormal epithelium and could possibly be interpreted as infiltrating tumor tissue. Actually it is not, and I would ask you to note that in the section endocervical glands can be seen and these glands are actually responsible for the apparent infiltration we are looking at, a point I will explain in more detail in a short while when we look at the section under high-power.

The next slide (figure 4) is a picture of the surface epithelium from the previous slide taken under high-power and illustrates the epithelial changes in greater detail. On the right is the normal squamous epithelium showing the deeply staining basal cell layer, with the cells maturing as they get nearer the surface until on reaching the surface the nuclei are quite small and the epithelium well cornified. Quite suddenly there is an abrupt change and on the left of the slide we see, if I may use the term, "malignant", epithelium in which the deeply staining cells persist right to the surface of the epithelium. Many of these cells have abnormal nuclei with many mitotic figures being present and looking at this slide it is fairly easy to see why it is that in cancer in situ, just as in infiltrating cancer, we find abnormal cells in the vaginal smears. The abnormal cells extending directly to the surface of the epithelium desqumate and are shed off into the vaginal secretions and

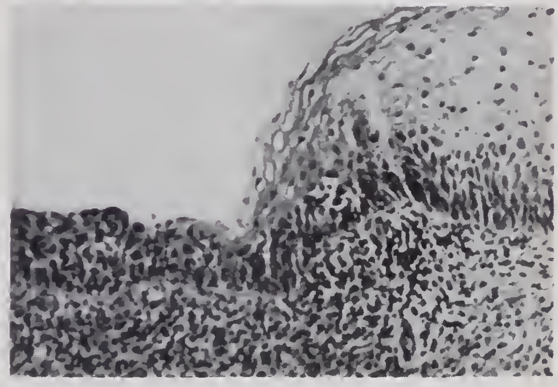

Figure 4

High-power view of junction of normal epithelium with carcinoma in situ.

since they have such abnormal characteristics they are recognizable in the smears.

The next slide (figure 5) is a still higher powered view of the abnormal epithelium to point out some of the abnormalities in the cells. Looking at this slide one sees markedly abnormal nuclei many being almost giant in type, and abnormal mitotic figures are present. I think that anyone with training in pathology, if given this piece of epithelium by itself, would say "This is malignant tissue." In other words, we have here malignant-looking epithelium confined to the surface.

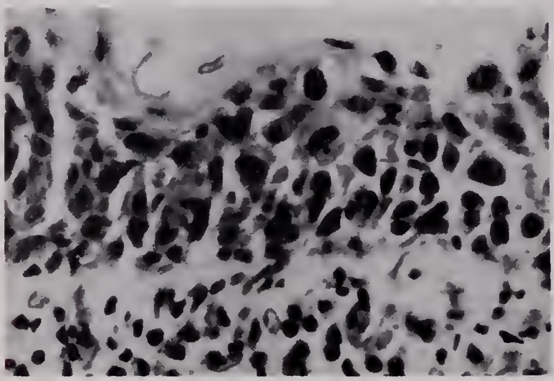

FIGURE 5
High-power view of carcinoma in situ illustrating changes in cell nuclei.

The next slide (figure 6) is taken from a section of another area of the biopsy material, and here something else is happening. The same abnormal epithelium as before is present, but now it is dipping down into the underlying stroma and at first sight one might say that it represents beginning infiltration. Actually it is not. What is happening is that this actively growing epithelium, which has not yet penetrated into the stromal tissues but is growing rapidly, is following the path of least resistance. Before it bursts through the basement membrane and pressurizes itself into the underlying tissues, it will grow along established pathways, one of these pathways being that afforded by the openings of the endocervical glands. Just below the projecting epithelium in the slide, there is such an endocervical gland and I am sure that this gland actually communicates with the lesion seen in the section, and this epithelium is simply growing down into the endocervical gland, and a distinct basement membrane is still present around the abnormal tissue. At this stage the lesion is still intra-epithelial, or carcinoma in situ. It has not yet broken that important boundary, the basement membrane. As long as it remains confined to the glands or the surface epithelium it will probably not metastasize because the surface epithelium does not have lymphatic channels within it.

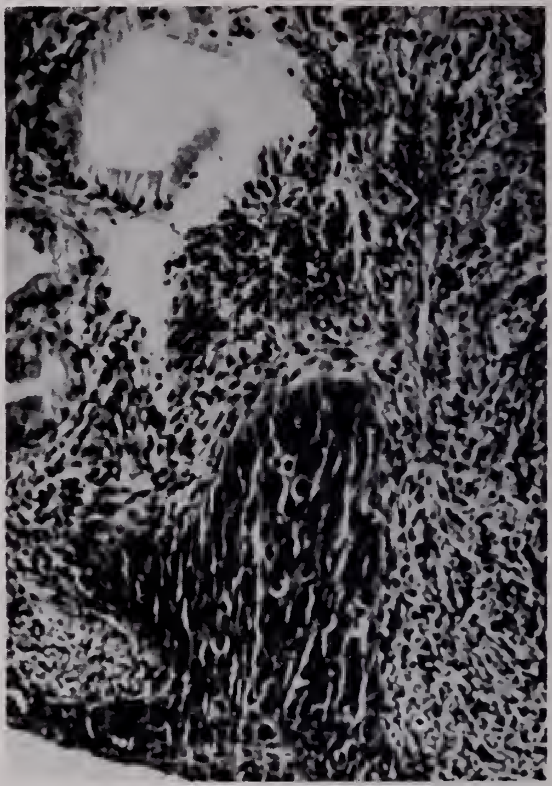

FIGURE 6
Section showing carcinoma in situ growing into endocervical gland.

The final slide shows a high-power view of the portion of detached or apparently detached, portion of tumor tissue referred to previously in figure 3. In the upper part of the slide there is, again, the abnormal cancerous epithelium. Down below there is an apparently detached piece of similar appearing epithelium which might be interpreted as infiltrating tumor. Actually, it is not. This simply represents a piece of abnormal epithelium which has grown down into an endocervical gland, just as the fragment we saw in the previous slide was beginning to do. It has grown down deeply,

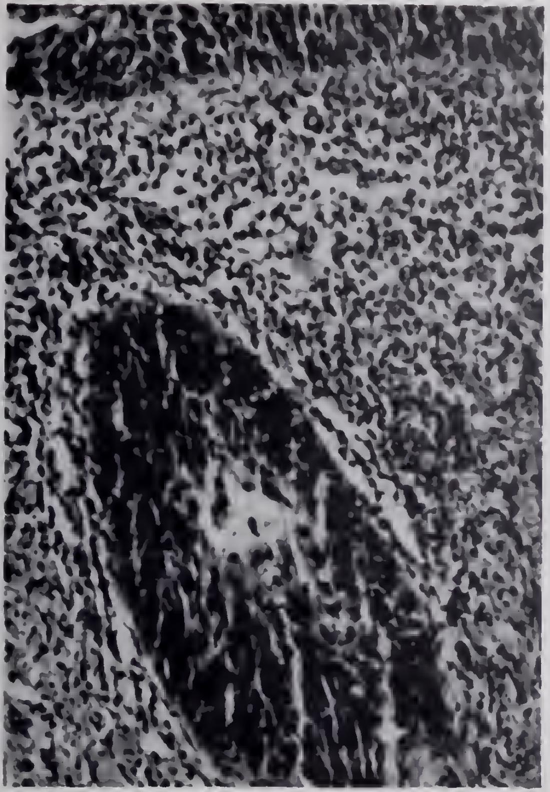

Figure 7
Section of carcinoma in situ showing lesion below surface in endocervical gland.

and because of the plane of the section it cannot be followed in the slide to the surface, but at the lower border of the tumor cells a few columnar epithelial cells can still be identified, and the epithelium still has a very distinct limiting membrane around it. At one time it was thought that such a lesion did represent early infiltration, but the majority of informed opinion at the present time regards such a lesion as representing carcinoma in situ.

The photo-micrographs have illustrated some of the histologic features upon which the pathologist makes his diagnosis. Now, in this particular case, the biopsy material contained the entire tumor as far as could be determined. The treatment this patient had, supplied the pathologist with the entire cervix for subsequent study, then it was cut up into a couple of dozen small pieces for blocking, and from these blocks multiple sections were cut, no residual tumor being found, so presumably the patient would have been cured in this case by a diagnostic ring biopsy. I would emphasize here that when a diagnosis of carcinoma in situ is made on a biopsy specimen, it simply means that the pathologist found carcinoma in situ in that particular specimen, and it must not be presumed that the patient only had carcinoma in situ from such material, because we know that very often these surface changes are associated with frankly infiltrating carcinoma. Such a finding is to be expected, since if it is believed that carcinoma in situ is the initial stage of infiltrating cancer, then in such cancers areas of carcinoma in situ adjacent to the frankly infiltrating tissue will be found from time to time.

Now a word or two about the nature of carcinoma in situ. Is it a true cancer? Unfortunately with the evidence that we have at the present time, there is no concrete proof on this point, but personally I believe that the evidence we do have is extremely suggestive, so much so that my own personal view is that carcinoma in situ does represent a stage in the development of a true cancer. Dr. Hayden has mentioned much of the evidence available already this evening. The age incidence of the lesion is one fact that may be mentioned, the peak incidence of carcinoma in situ tending to occur some ten years earlier than the peak incidence of frank infiltrating carcinoma of the cervix, a fact readily acceptable if, as is believed, carcinoma in situ represents an early slowly growing phase of development of truly infiltrating carcinoma. Carcinoma of the cervix in Jewish women is approximately five times less frequent as in the non-Jewish, and similarly carcinoma in situ is about one-sixth less frequent in the Jewish race. Similarly, infiltrating epidermoid cancer of the cervix is approximately twice as frequent in members of the Negro race as in the White race, and carcinoma in situ in the Negro is approximately twice as frequent as in the white race.

In some clinics series of cases of carcinoma in situ diagnosed by biopsy, have been watched without receiving any therapy following the biopsy, and they have subsequently developed infiltrating cancer. Dr. Hayden mentioned a series in Norway, and there is a similar series by Petersen in Denmark. Of Dr. Petersen's carcinoma in situ cases 25% have developed frankly infiltrating carcinoma anywhere from three to ten years after the initial diagnosis of carcinoma in situ, and perhaps more of them will as time goes on. At the Massachusetts General Hospital 700 cases which had histologic diagnoses of infiltrating carcinoma of the cervix or carcinoma in situ, were studied, and their past histories reviewed. Of these 700 cases, 13 were found to have had previous cervical biopsies anywhere from five to fifteen years before the final diagnosis was established. On reviewing the slides from the previous biopsies in these 13 cases it was found that 11 of them did in fact have evidence of carcinoma in situ in the earlier biopsy. This brings up another point, what were we calling carcinoma in situ ten, fifteen or twenty years ago? At that time the lesion was not diagnosed in the cervix although it must have been there as was proven by the Massachusetts General Hospital study. As I mentioned earlier, many cases of frankly infiltrating cancer of the cervix show associated changes of carcinoma in situ in adjoining surface epithelium, which might be interpreted as representing a change from the in-situ lesion to the infiltrating lesion.

All of the facts mentioned are suggestive but do not definitely prove the point, but I certainly believe that the lesion that is carcinoma in situ represents carcinoma in its earliest form.

Another point to be considered is that even though this lesion is an early cancer, can the changes regress — can the lesion heal? There are cases on record in which this seems to have happened, cases in which a diagnosis of carcinoma in situ had been made histologically with subsequent complete healing of the cervix and no recurrence of the lesion. Here again however we can not be absolutely sure because in such cases we have no means of knowing whether or not the biopsy did not remove the whole of the tumor, in other words, being, in effect, a curative biopsy.

Dr. Morton Keyser:

Doctor Hayden and Doctor Abbiss have hinted around quite a bit as to treatment of carcinoma in situ of the cervix, and I think they both purposely left out anything about it because they knew I wouldn't have much to say as it is, and I don't want to get too involved in controversy.

When Doctor Abbiss said that in situ does not spread because of the absence of lymphatics, he gave us the crux of the treatment. The treatment is entirely dependent upon this fact. Therefore, the treatment can be entirely different from that of any invasive carcinoma which will spread by way of lymphatics and is very much more rapid in its progress, and of course, much more dangerous.

For purposes of practicality, I feel it is best to divide patients according to age groups. I think that it's difficult to say, but perhaps age 36 and over should be considered as one age group, and under 36 considered as a separate age group.

If a woman is 36 or beyond, and has had children, I feel that hysterectomy is the procedure of choice, for this, without question, eliminates permanently any possibility of recurrence, and, if this is truly a precursor to true invasive cancer, has eliminated this possibility. The hysterectomy does not need to be a radical hysterectomy for the simple reason that there is no invasion beyond the surface. There is no lymphatic spread. If it's true carcinoma in situ, definitely proven by multiple sections, large biopsy tissues taken, of course, then there need not be any radical procedure. TeLinde, in Baltimore, performs a modified radical hysterectomy. He takes everything but the lymph nodes.

If a woman is in this age group, then there are some who would amputate the cervix. This would bring us to discussion of that age group in between — the very young and the older women. A number of gynecologists would choose cervical amputation as the treatment in say age group 30 to 36, but this is still open to some question. It is possible that invasive carcinoma high in the cervix is present, and could be missed by simple amputation. I feel that although there are surgeons who do it, that amputation of the cervix might be considered the unusual rather than the standard treatment.

The real problem in carcinoma in situ is not in the older group of women, but in the young woman who either has had no children or has perhaps one child, and in whom conservation of the childbearing function would be highly desirable.

The very nature of this disease is such, as Dr. Abbiss has said, that biopsy might readily cure the disease, and that would, of course, lead us right into the treatment of the condition by deep biopsy and conization or cauterization. There are great numbers of patients throughout the world who have been treated by this very simple method, most of whom are alive and only those, I feel, that perhaps are not with us today, are those who did not have true in situ carcinoma. As Dr. Abbiss implied, there are many patients in the past who had invasive carcinoma because it wasn't understood that this could be a surface condition, associated with deep invasive carcinoma that could easily be missed on the first biopsy.

As an illustration, I have in mind one of my own patients, who at age 21 had her first baby, and on her six months' postpartum examination I received a report from the pathologist of a Class II Papanicolaou slide, and biopsy proved it be in situ. I did a deep biopsy and conization and have been following the patient ever since, and subsequent smears have been negative.

The main point to stress, I believe, is that the treatment can be conservative in the sense that there need not be radiation or radical surgery.

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## PROGRAM

### SIXTH ANNUAL SCIENTIFIC ASSEMBLY

### DELAWARE ACADEMY OF GENERAL PRACTICE

### Saturday, December 7, 1957

### KENT MANOR INN, WILMINGTON, DELAWARE

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| 9:00 A.M. | Registration. |
| 10:00 A.M. | "Treatment of Hypercholesterolemia with Unsaturated Fatty Acids" — by J. A. Hubata, M.D., Kankakee, Illinois. |
| 11:00 A.M. | "Recent Advances in the Chemotherapy of Leukemia and Related Disorders" — by Donald S. Searle, Ph.D., M.D., Tuckahoe, N.Y. |
| 1:30 P.M. | "Management of Advanced Carcinoma with Radioactive Isotopes" — by Richard H. Chamberlain, M.D., Philadelphia, Pennsylvania. |
| 2:30 P.M. | "The Allergic Patient, His Problems, Office Diagnosis and Treatment" — by Nathan E. Silbert, M.D., Chelsea, Mass. |
| 3:30 P.M. | "A Rational Approach to the Management of High Blood Pressure" — by Edgar W. Young, M.D., Kalamazoo, Michigan. |
| 6:00 P.M. | Cocktails & Dinner-Dance — Hotel Du Pont. |

# DIAGNOSIS OF VIRAL DISEASES AND EVALUATION OF PULMONARY FUNCTION

GEORGE J. BOINES, M.D.*

The first requisite for an accurate scientific early diagnosis of an infectious disease is the prompt identification of the etiologic agent.[1] Scientific developments in medicine today are progressing so rapidly that the busy clinician finds it difficult to keep pace with all the available tests which can be utilized to make possible an exact diagnosis early enough to stop or reverse the disease process by proper treatment. On the other hand, the clinician who does keep up with all of the tests finds that facilities are not available in the general hospital in a community like Wilmington where medical school teaching laboratories are lacking.

While it is true that our hospitals have expanded their physical structures, the laboratory and diagnostic facilities are always left trailing behind due to the forever-exhausted budget. Perhaps the responsibility for this insufficiency of modern diagnostic modalities rests on the shoulders of the physician. Hospital Boards and Administrators supply the medical workshop and it is up to us as physicians to see that the necessary tools of our profession are made available.

The laboratory has a contribution to make, which, if it should be adequately supported by state or community, will go far toward meeting the demands for modern medical care, and is capable of making that care predominantly preventive and of a high professional order.[2] In this presentation I wish to point out two examples of the many important diagnostic improvements which can be made in our hospitals.

The most recent medical advances which affect public health in general have been in the field of virus diseases.[3] This has come about since successful techniques were developed in isolating viruses[4] through tissue cultures. As a result of these new laboratory aids, the Salk[5] poliomyelitis vaccine was developed in 1954 for the immunization against three types of poliomyelitis viruses. These virus detection tests are no longer research procedures[6] but are practical and may be performed in any hospital laboratory.[7,8,9]

Another factor which makes viral diseases important from the standpoint of control is the inherent ability of viruses to vary[10] and to mutate.[11] New families of viruses have already been identified in the laboratory and clinical entities have been associated with them.[12,13] The ECHO[14] (Enteric Cytopathogenic Human Orphan), the APC[15] (Adenoidal-Pharyngeal-Conjunctival), the CA[16] (Croup Associated in Infants), the Coxsackie,[17] the AF[18] (Asiatic influenza virus) which is already producing a "hysteroid atmosphere" in our midst, and many others not as yet identified, are clinical problems. Early diagnosis by tissue culture and serological tests[19] is certainly essential if the diseases are to be treated intelligently and proper preventive measures taken to stop their spread.[20] Many conditions usually diagnosed clinically as summer diarrhea in children,[21] croup in infants, aseptic meningitis,[22,23] and influenzal meningitis, upper respiratory infections and conjunctivitis, non-paralytic or mildly paralytic poliomyelitis,[24] are in reality, infectious diseases caused by the new viruses. The following table from Kibrick et al[24] is self-explanatory.

Viruses Recovered in Tissue Culture from Stools of Patients with the Clinical Diagnosis of Poliomyelitis in Massachusetts in 1954

| VIRUS | No. Recovered | Per cent |
|---|---|---|
| Polio | 16 | 23.2 |
| Coxsackie | 5 | 7.2 |
| Adenovirus | 4 | 5.8 |
| ECHO Type 2 | 2 | 2.9 |
| ECHO Type 14 | 1 | 1.5 |
| Unidentified | 1 | 1.5 |
| ECHO Type 6 | 40 | 58.0 |
| TOTAL | 69 | 100.0 |

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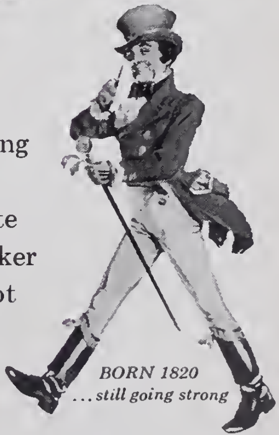

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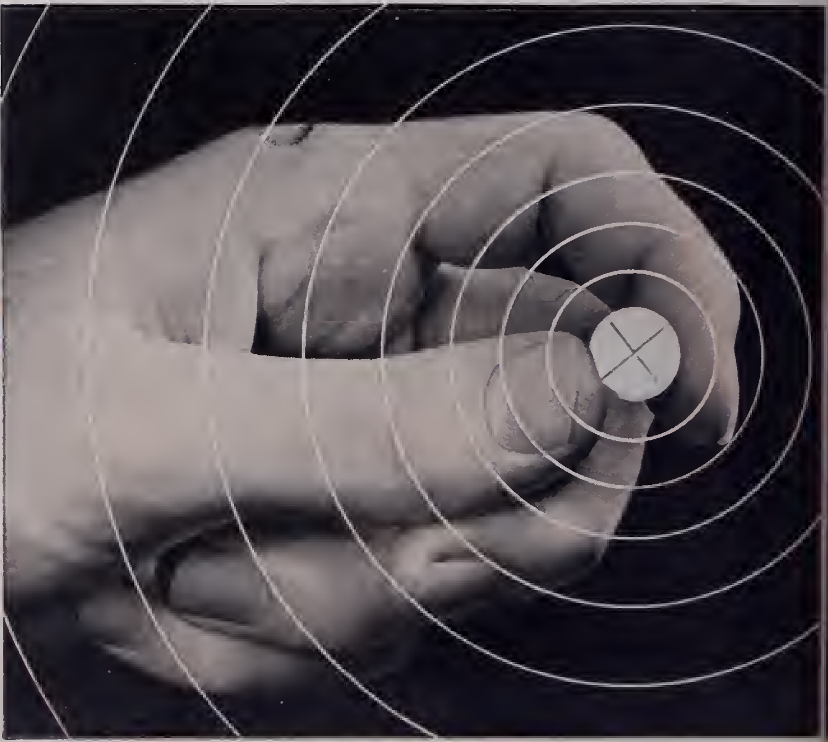

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[1] Nichols, R. L. and Finland, M.: J. Clin. Med. 49:410, 1957.

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There are no diagnostic viral facilities in Delaware. Consequently, many occasions have arisen in the past where specimens of blood, stool, spinal fluid, and throat washings were sent to Albany, USPH Communicable Disease laboratories at Montgomery, Alabama, Atlanta, Georgia, and to Philadelphia. Many times test tubes containing sera were broken in transit or became unsatisfactory so that weeks later it was necessary to recall the patient for additional blood. The results of these tests had been delayed two or more months, so that treatment of the patients was based on clinical evidence alone and the laboratory findings eventually confirmed or reversed the diagnosis.

Dalldorf[25] gives an excellent discussion on the planning for a virus laboratory in the general hospital.

He outlines the various tests in Chapter X entitled "The Simple Common Technics". The preparation of suspensions, antisera, inoculations of animals and eggs are discussed.

"The tests commonly used today in diagnosing viruses are (1) Cultivation of viruses in fertile eggs, tissue explants and monkey kidney or HeLa cells; (2) Neutralization test; basic serologic procedure in virology and yields by and large the most specific and significant evidence of the antigenic identity of viruses and of immune responses to infection; (3) Hemagglutination test: the most useful for studies of influenza and mumps in man and of Newcastle disease in poultry (this test has wide application in studies of individual patients and in field of epidemiologic surveys.); allantoic fluid of embryonated eggs successfully inoculated with throat washings from a patient suspected of having influenza will agglutinate chicken erythrocytes, indicating that a strain of virus has been isolated. The unknown virus is then identified by treating it with known antisera; (4) Complement fixation: used in the diagnosis of encephalitis, herpes simplex, influenza, lymphocytic choriomeningitis, lymphogranuloma venerium, mumps, psittacosis, Q-fever, Rocky Mountain spotted fever, typhus, and vaccinia."*

The additional laboratory space required for virology need not be more than two average rooms for incubators, centrifuge, refrigerators and work tables. The inclusion of virology in the regular hospital laboratory facilities of pathology, bacteriology, histology, chemistry, records, et cetera, will require additional trained personnel. Income derived from the virology tests will more than offset the added expense.

Another field of medicine in which outstanding progress has recently been made is in lung anatomy,[26] the application of pulmonary physiology to clinical problems of lung disease,[27] and pulmonary ventilation.[28] In pediatrics this is especially important, since Reichert states that "Abnormal pulmonary ventilation accounts for more than half the deaths during the first week of life".[29] According to Spencer[30] "In the classic mechanical and biochemical sense, normal respiration may be defined as the optimum adjustment of rate, depth, and pattern of breathing that meets the metabolic demand for oxygen uptake and carbon dioxide elimination with minimal expenditure of energy by the respiratory muscles". In order to detect the reason for abnormalities in oxygen intake and carbon dioxide elimination, one needs special equipment and trained personnel to use it. Here again our general hospital facilities are deficient.

Physiologists in anesthesiology[31] and in aviation medicine[32] have been able to analyze the process of respiration in great detail. They have developed respiratory equipment[33] which has been life-saving in high altitude flying and in such clinically important pulmonary diseases as pulmonary emphysema, pulmonary atelectasis, bronchial asthma, tetanus, obstructed airway in infants and adults (whether it be mechanical or paralytic), post-operative complications arising from anesthesia,[34] the pneumonias, respiratory acidosis and alkalosis,[35,36] and other pulmonary,[37] cardiac and paralytic[38] conditions in which there is interference with normal pulmonary ventilation.

---

* From Dalldorf, Gilbert, Introduction to Virology, 1955. Courtesy of Charles C. Thomas, Publisher, Springfield, Illinois.

Another disease in which the mechanics of respiration become important is bulbar respiratory paralytic poliomyelitis. Special "Respiratory Centers"[39] have been organized in hospitals in order to treat these patients efficiently. In Delaware, this work has been done at the Doris Memorial Unit of the Wilmington General Hospital.[40]

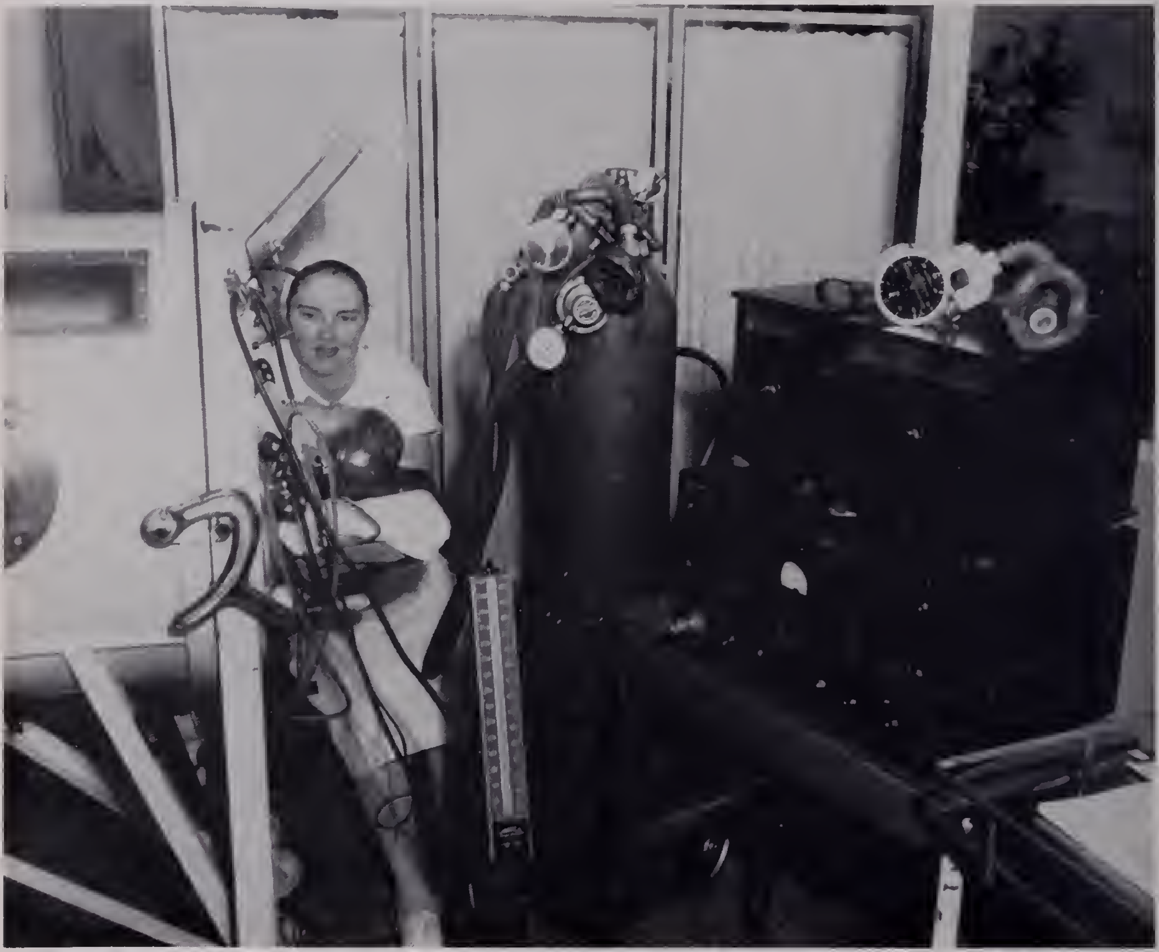
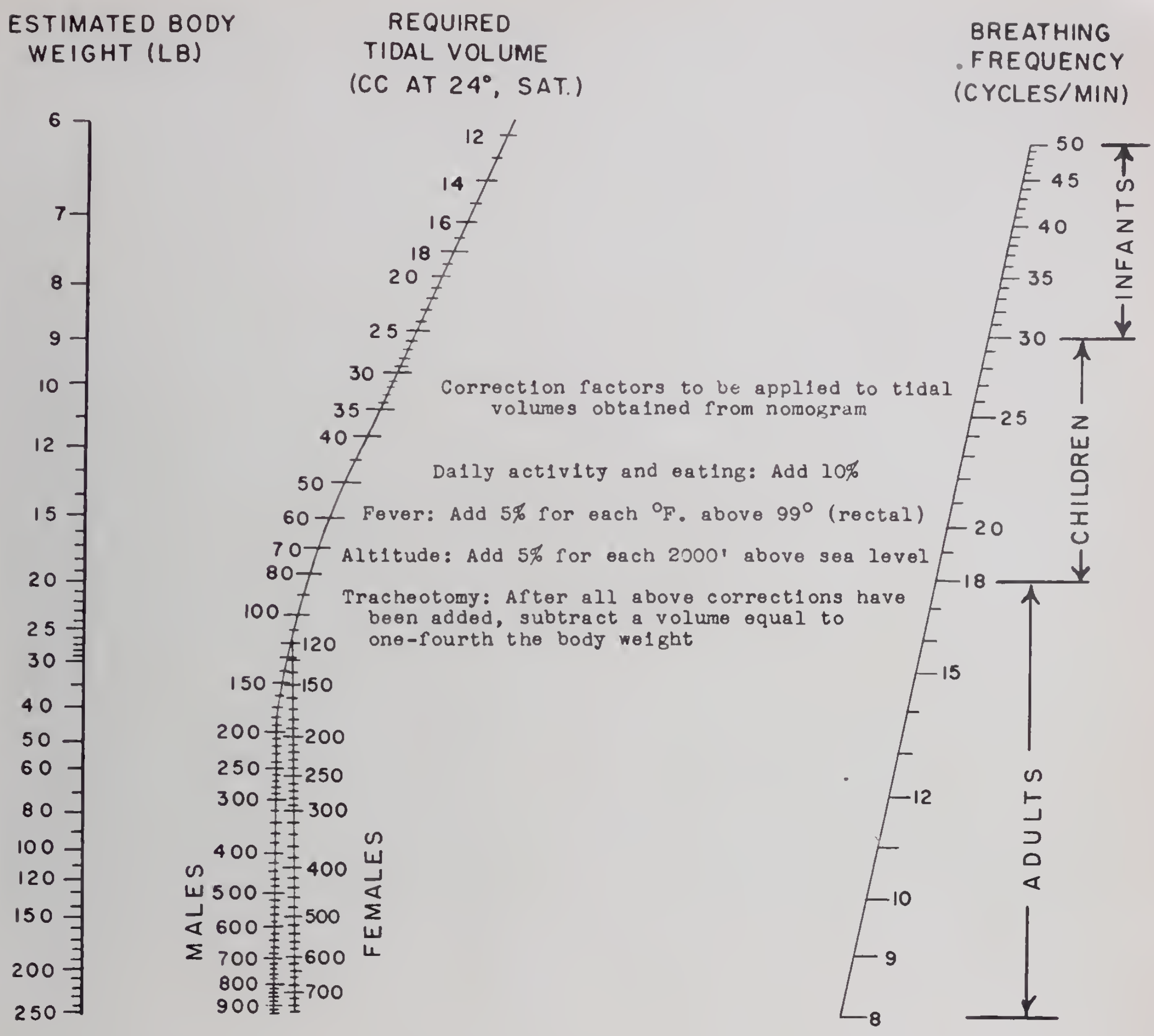


FIGURE 1
Photograph taken by the author at Doris Memorial Unit of Wilmington General Hospital.

Figure 1 shows a ten year old girl in the tank respirator. Child has paralysis of both upper extremities, intercostals, and one side of the diaphragm. The photoelectric cell is in position on the left ear. The Monaghan respiratory meter (resting on top of galvanometer) was used to measure the tidal air in order to regulate the adequacy of the negative pressure and rate of the respirator. The oxygen saturation of the blood was calculated by the galvanometer readings. The intermittent positive pressure machine attached to the oxygen tank is used to inflate the lungs at regular intervals. The average tidal air required is calculated by Radford's ventilation Nonogram.[41]

Figure 3 shows the use of the oximeter; photoelectric cell is attached to the patient's ear to measure oxygen saturation of the blood; galvanometers are on top of oximeter. Patient has tracheotomy for emergency suction of secretions.

The respiratory meter is an accurate instrument for measuring vital capacity. In patients with respiratory paralysis frequent vital capacity measurements are mandatory during the acute phase to determine when a respirator is necessary. When the vital capacity is reduced to less than 50% of the calculated normal[39] the patient must be placed in a respirator in order to prevent



Correction factors to be applied to tidal volumes obtained from nomogram

Daily activity and eating: Add 10%

Fever: Add 5% for each °F. above 99° (rectal)

Altitude: Add 5% for each 2000' above sea level

Tracheotomy: After all above corrections have been added, subtract a volume equal to one-fourth the body weight

Figure 2

(Radford's ventilation Nomogram. Permission obtained from New England Journal of Medicine).

exhaustion and to prepare him psychologically and obtain his cooperation. The entire subsequent course of treatment may depend on this point because when patients are placed in the respirator late, or when respiratory acidosis has developed, the cooperation of the patient is poor and he becomes dependent on the respirator.

Special equipment and trained personnel require considerable funds. However, in this day and age when millions are spent in research, the problem of expense is a relative one. Life cannot be measured in monetary values. It is our responsibility to search constantly for better methods of diagnosis and treatment. To quote Bohan,[42] "Progress in any profession is measured by the amount of research done in it. Hospitals cannot progress unless they study themselves and seek methods of improvement. This is true in all areas of hospital activity, medical, education, nursing service, technical services, and hospital administration itself". Thus, it becomes the duty of the hospital clinical research committees to study the efficiency and the applicability of new tests and techniques and see that our patients and our community benefit from them.

## Summary

1. Viruses are now causing disease entities important to our patients and to the community as a whole. Diagnostic facilities are not yet available in the State of Delaware. Our virology problems can be solved

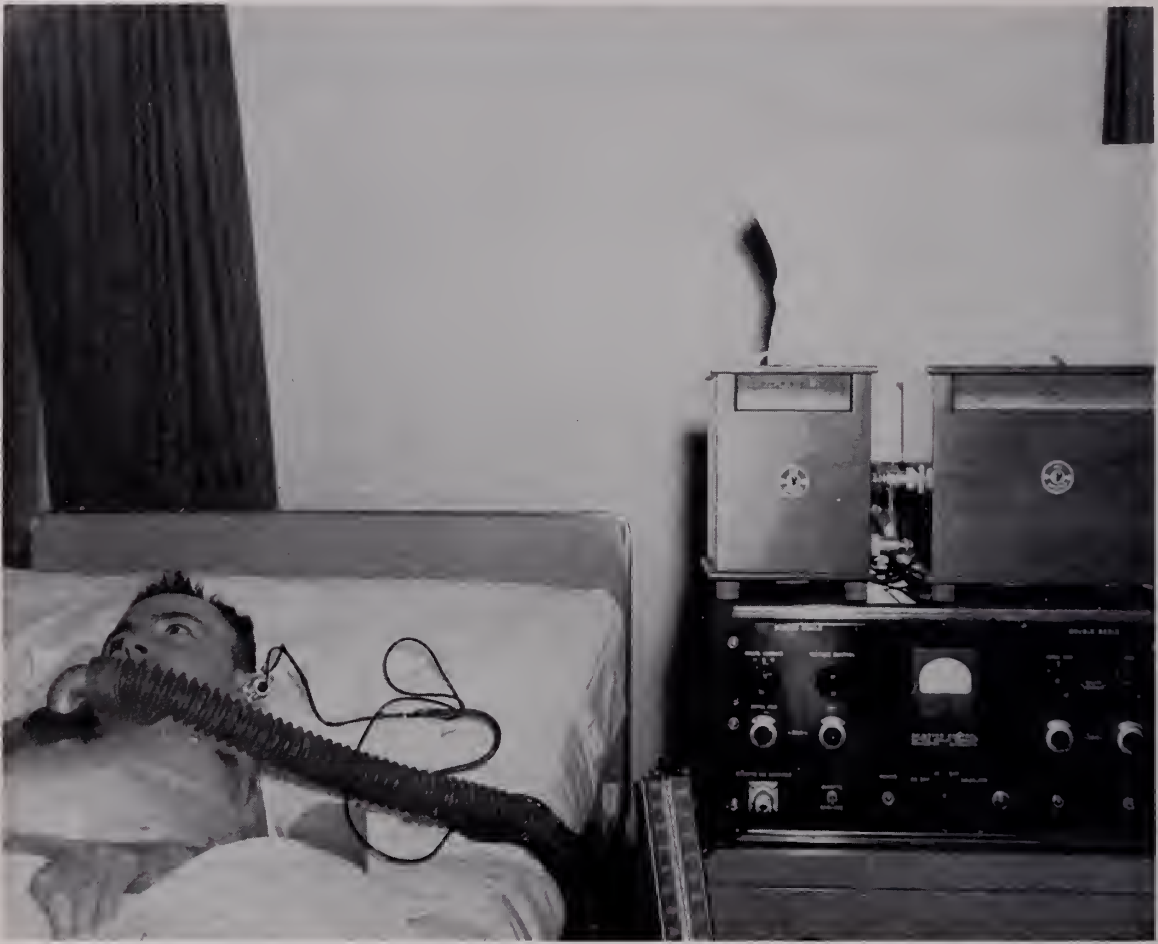


FIGURE 3
Photograph taken by the author at Memorial Hospital, Wilmington, Del.

by establishing facilities for the simple and inexpensive tests which are now available.

2. The physiology of respiratory function has been thoroughly studied and the findings have been applied clinically in aviation, also in respiratory paralytic poliomyelitis centers. Pulmonary function equipment and tests are essential in the armamentarium of the general hospital today in order to give scientific treatment to patients with lung and pulmonary ventilation problems. In many cases of abnormal pulmonary ventilation, oxygen administration is contraindicated. In other cases it is essential and life-saving when properly administered and supervised.

3. The importance of laboratory evaluation of viral diseases and of pulmonary ventilation abnormalities in the general hospital is emphasized. The former is not practiced inside Delaware. The latter is slowly developing in some of our hospitals, but the progress is tardy. The research has been done. It is now imperative that action be taken by staff, administration, and research groups, lay and medical, to expedite these facilities for the benefit of our patients and community.

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# RESPIRATORY ALKALOSIS AND ASSOCIATED PHENOMENA*

JOHN J. GRAFF, M.D.**

An understanding of acid-base balance and electrolyte therapy can be significant in the preparation of the severely ill patient for the insult of anesthesia and surgery. Survival itself may depend on intelligent control of a critical postoperative state. One phase of acid-base balance is described in detail, with comparisons of related conditions. Calculations are used in an attempt to clarify the relationship of clinical and laboratory data.

Normal values applied to the Henderson-Hesselbalch equation illustrate the relationship between the carbon dioxide combining power ($HCO_3^-$), the dissolved carbon dioxide of the plasma ($pCO_2$) and blood pH.

$$pH = pK + \log\frac{HCO_3^-}{pCO_2} \quad 7.4 = 6.1 + \log\frac{27mE/L.}{1.35mE/L.}$$

Blood pH and the constant of other acid factors (pK) are expressed in negative log for convenience. Thus where a neutral solution such as water will have a hydrogen ion concentration of 0.0000001 gram per liter ($1 \times 10^{-7}$) we represent this as pH 7. A solution ten times as acid (0.000001 gram or ($1 \times 10^{-6}$) we designate pH 6. A solution one-tenth as acid is termed pH 8. Normal blood pH is alkaline, pH 7.4 and the constant is acid pH 6.1.

The normal ratio of $HCO_3^-$ to $pCO_2$ is 20 to 1. Any increase or decrease of either value without a corresponding similar change in the other will disturb the value of pH of the plasma.

A clinical syndrome can now be examined with the help of the data already considered. Respiratory alkalosis is the state resulting when hyperventilation causes such a loss of carbon dioxide that the normal relationship with $HCO_3^-$ is disturbed and alkalosis results. It is seen in a number of instances, examples of etiology being fever, anoxia, encephalitis and exaggerated physical activity. Typical values are substituted in the equation:

$$pH = 6.1 + \log\frac{24}{0.8} = 7.5$$

This early phase of uncompensated alkalosis is gradually changed when an increase of chloride, ketone acids and lactic acid results in a decrease of $HCO_3^-$ to restore the normal ratio and normal pH.

$$pH = 6.1 + \log\frac{16}{0.8} = 7.4$$

This intermediate phase is termed a compensated respiratory alkalosis and progresses to a late stage in which there is further decrease of both $HCO_3^-$ and $pCO_2$ to cause an acidosis similar in extent to a metabolic acidosis.

$$pH = 6.1 + \log\frac{6}{0.6} = 7.1$$

The differentiation between this late stage of respiratory alkalosis and metabolic acidosis could not be made from determination of the blood pH unless earlier stages had been observed. The markedly lowered $pCO_2$ would be of help in diagnosis because $pCO_2$ in metabolic acidosis is decreased to a lesser degree. Respiratory alkalosis exhibits neurological changes, as for example Chvostek's sign as seen in calcium tetany. A summary of points of differential diagnosis between respiratory alkalosis and metabolic acidosis is tabulated.

| | RESPIRATORY ALKALOSIS | METABOLIC ACIDOSIS |
|---|---|---|
| pH early | increased | decreased |
| pH compensated | normal | decreased |
| pH late | decreased | decreased |
| ventilation | marked increase | some increase |
| $PCO_2$ | marked decrease | some decrease |
| neurological | present | absent |

The complete electrolyte study of the progression of a case of respiratory alkalosis shown:

---

* From the Department of Anesthesiology, St. Francis Hospital. Presented to the Medical Department, June 20, 1957.

** Chief, Department of Anesthesiology.

| | Na | K | Cl | $HCO_3^-$ | pH |
|---|---|---|---|---|---|
| Uncomp. Resp. Alk. | 143 | 5.2 | 112 | 25 | 7.52 |
| Comp. Resp. Alk. | 122 | 5.3 | 100 | 16 | 7.42 |
| End Stage Resp. Alk. | 145 | 4.5 | 131 | 6 | 7.11 |

Attention is called to the sodium values that influence the resulting combined total of chloride and carbon dioxide combining power that are seen changing with the sodium determinations. The potassium change showing the characteristic decrease in late stages is typical of this condition. Other changes tabulated have already been discussed.

An illustration is given of a case of hepatic coma with electrolyte values before and after treatment.

| | $HCO_3^-$ | pH | K |
|---|---|---|---|
| pre-treatment | 20mE L. | 7.69 | 2.4 |
| post-treatment | 21mE L. | 7.40 | 2.7 |

Seen in the equations:

$$pH = 6.1 + \log\frac{20}{0.4} = 7.69$$

and after treatment:

$$pH = 6.1 + \log\frac{21}{1.05} = 7.40$$

Comparison with values in treated metabolic acidosis is illustrative. In this case the only values available in the short period in which operation was delayed were the $HCO_3^-$ values that showed the change from 13 mE L. to 22 mE L. The clinical appearance of the patient completed the picture, changing from an obviously dehydrated, cyanotic patient with skin cold and wet to one without dyspnea and with skin pink, warm and dry. Reconstructing equations here:

$$pH = 6.1 + \log\frac{13}{1.37} = 7.1$$

and after treatment:

$$pH = 6.1 + \log\frac{22}{1.37} = 7.35$$

A review of some other deviations of acid-base balance is included to further illustrate the buffer mechanisms. In a case of metabolic alkalosis from pyloric obstruction with vomiting and a marked loss chloride with a compensatory increased $HCO_3^-$ we see:

$$pH = 6.1 + \log\frac{54}{1.35} = 7.6$$

The increase in $HCO_3^-$ represents the effort to balance the sodium values that have declined less than chlorides. The effort to decrease respiration and increase $pCO_2$ and restore a normal ratio is not adequate because of onset of anoxia.

Another illustration of respiratory acidosis in which there is a marked increase in $pCO_2$ in emphysema:

$$pH = 6.1 + \log\frac{27}{3.0} = 7.0$$

Here there will follow selective retention of sodium and loss of chloride in urine to allow an increase in $HCO_3^-$ to restore a more normal ratio and more normal pH. If this acidosis results from anesthesia, time will not allow correction by the kidneys.

In review, the physical condition of the patient and his history correlated with only the determination of $HCO_3^-$ will allow diagnosis of acid-base imbalance. Thus in a patient with a history of diabetes with Kussmaul respiration, a low $HCO_3^-$ will point to metabolic acidosis. In a patient with encephalitis with hyperpnea, a low $HCO_3^-$ will mean respiratory alkalosis. An emphysematous patient with decreased ventilation and increased $HCO_3^-$ will exhibit respiratory acidosis. A case of pyloric obstruction with vomiting and high $HCO_3^-$ will be typical of metabolic alkalosis.

The treatment of respiratory alkalosis is outlined. Ten per cent carbon dioxide administered by catheter or tent is useful. The potassium and phosphate deficit should be corrected. If the original cause has not been removed, unusually large doses of intravenous sodium bicarbonate will be needed to help the late acidosis.

## SUMMARY

Respiratory alkalosis is described by detailing the changes in the buffer systems of the body that result as it progresses. Physical findings and history are correlated with laboratory data. Calculations are made of this and other acid-base disturbances.

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# PROCEEDINGS OF A MEETING OF THE SURGICAL DEPARTMENT OF ST. FRANCIS HOSPITAL

Moderator: JOSEPH F. HUGHES, M.D.*
Discussants: JOSEPH W. ABBISS, M.D.,**
EDWARD M. BOHAN, M.D.,*** RAFAEL E. ALZAMORA, M.D.****

This surgical conference was held in the Hospital Library on May 20, 1957. The agenda included the presentation of a case simulating acute appendicitis and comments on appendectomy.

DR. HUGHES:

We have an interesting case to present today, one of possible appendicitis. The patient had been in an automobile accident a few days before he came into the hospital, and then he had pain in the lower right quadrant, and when I examined him, he had tenderness and rebound tenderness, but fortunately he was not operated on. Dr. Alzamora, would you give the history?

DR. ALZAMORA:

The patient was a 16 year old boy, whose chief complaint was pain in the right lower quadrant and some nausea. His past surgical history included only a tonsillectomy in childhood. There was no family history of tuberculosis, diabetes, or heart disease; one aunt had cancer of the liver.

The patient stated that he was in a car accident April 5th and had hurt his right ankle. The night before admission, he had pain in the right lower quadrant, and felt nauseated. The pain was rather severe, but subsided a little on the morning of admission (April 8th). His bowel movements were normal and there were no urinary symptoms. Last summer, patient had the same kind of pain "off and on" for about a month.

On physical examination the skin was very slightly jaundiced, especially on the face. The pupils were round and equal, and reaction to light and accommodation was normal. The corneae and sclerae were normal. There were no pathological findings in the neck. Marked dental caries were noted. The chest was normal in appearance. There was no cardiac enlargement, sinus rhythm was present, and there were no murmurs. The lungs were clear to auscultation and percussion. The abdomen was soft, and no masses were palpated. The liver, spleen, and kidneys were not palpable. There was slight tenderness in the lower right quadrant, but there was no abdominal guarding and no rebound tenderness.

DR. HUGHES:

When I examined him, I did find rebound tenderness. Dr. Alzamora reported that he didn't find any, but the temperature was normal, the pulse was normal, and his white count was within normal limits, so we chose to wait. The next day he developed jaundice. A prothrombin time was 67%. He was very tender over his liver, and I called Dr. Bohan to see him. Dr. Bohan, would you comment on this case?

DR. BOHAN:

The patient had a history of grippe-like symptoms and fever on April 5th and 6th, the two days prior to admission. In addition, he had pain in the right lower quadrant with nausea. A consultation was requested to determine the cause of the jaundice. There was a history of epistaxis the week before admission. The patient had one white stool. About two months before admission, the patient had a tooth extracted and had received penicillin injections and also an injection of Novocaine. He had been complaining of vague abdominal pain for as long as eight months before admission.

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On examination of the patient, marked dental caries were noted. The liver and spleen were both palpable and tender. The heterophile antibody reaction was positive in dilution 1:10, a normal reading. The differential count showed 66% polys and 34% lymphs. A total protein was 6.2, with the albumen 4, and the globulin 2.2. Alkaline phosphatase was normal at the time, reading 5 Bodansky units. The cephalin flocculation test was 3+ after 24 to 48 hours. A total cholesterol was 222 mg., blood urea nitrogen, 10, and blood sugar was 79 mgm. per 100 cc. of blood. At this time, the question of appendicitis was temporarily eliminated. The most likely diagnosis was hepatitis or homologous serum jaundice. The lowered prothrombin was very suggestive of liver damage. This test was repeated, and all readings were low. There was marked liver damage.

On April 19th, twelve days after admission, a re-examination of the patient revealed that some cervical and axillary nodes were present. A blood count done on the 18th showed a marked lymphocytosis, 70% lymphocytes. This brought up the question of leukemia or mononucleosis. The heterophile antibody test was above the level of the previous one, now reading 1:200. A level above 1:128 is definitely diagnostic. This confirmed the diagnosis of infectious mononucleosis.

The patient's liver and spleen were tender, and he was placed on treatment for liver disease.

He remained tender in the region of the appendix, and it was thought that he might have appendicitis or lymphadenitis in the region of the appendix. Mediastinal lymph nodes are also enlarged in mononucleosis. The disease is one of unknown etiology, evidently due to a virus, and the incubation period is five to fifteen days. Cervical nodes are usually prominent. The nodes vary from the size of a pea to a walnut, but are discrete and slightly tender. Differential diagnosis has to be made between infectious hepatitis, where one may get a lymphocytosis, tuberculosis, leukemia, Hodgkin's disease, and lymphosarcoma. In some cases, a sternal bone marrow or biopsy of the nodes may have to be done. It was hardly necessary here because the clinical course was good.

The existence of liver pathology in diseases not primarily hepatic is important to discover in all patients, medical or surgical. Sometimes the diagnosis can be made inversely by uncovering the liver disease first. In addition to the better known liver diseases, other ailments causing liver dysfunction are: heart failure, diabetes, rheumatoid arthritis, thyrotoxicosis, and infectious mononucleosis.

Infectious mononucleosis occurs most usually between 18 and 30 years of age. It is more likely to be found in males, and is rare in Negroes. Hepatomegaly occurs in 12%, and splenomegaly in 50%. Epistaxis is common. During the first few weeks, the heterophile antibody is not likely to be positive. In fact, it has been reported initially positive as long as eight to nine weeks after the onset. The appearance of jaundice here is very interesting because jaundice does not usually occur with mononucleosis. Only about 5 to 6% of these cases have jaundice.

Burns are known to cause liver damage. Spinal cord injury may also do so. Metastatic cancer and diseases of the gall bladder and ducts are almost too common to mention. Post-operative infections may cause liver damage.

Non-icteric hepatitis due to virus infection probably occurs more frequently than hepatitis with jaundice. Routine tests for bile in the urine are worthwhile, as bile may appear in the urine below the icteric level in the blood. Most an-icteric hepatitis will show a disturbed liver profile as a positive thymol turbidity or cephalin flocculation test.

When jaundice occurs in any patient, the case should be assumed to be medical, unless proven otherwise by classical surgical symptoms and signs, and liver, blood, and urine tests confirm the diagnosis.

Schiff[1] has obtained a diagnostic accuracy of 92% with the combined use of clinical, laboratory, and needle biopsy of the liver. The needle biopsy is indicated only in the following situations:

a. To distinguish medical and surgical cases when classical symptoms and signs are absent and laboratory examinations are inconclusive.

b. To distinguish toxic hepatitis from infectious hepatitis where there is a history of exposure to a known hepato-toxic agent.

c. Obscure medical-systemic disorders.

d. Suspicion of metastatic neoplasm.

e. Hepatomegaly of undetermined cause.

The mortality with needle biopsy is less than 0.1%.

The prothrombin test is a sensitive index to the health of the liver cells. Lord and Andrus[2] state that every case of jaundice where the initial prothrombin time was 80% or more was extra-hepatic. Vitamin K is not absorbed adequately in the absence of bile acids. Only one-third of jaundice patients have an initial low prothrombin test.

This case is interesting because of the presence of appendicitis or lymphadenitis associated with the disease. Since the heterophile antibody reaction is not positive early in mononucleosis, it is quite possible to rush into surgery too soon.

It is my conclusion that this case demonstrates the great need for a thorough medical work-up before any patient goes to surgery. In some clinics in the country, all patients are admitted to the medical service. This might also be a mistake. However, it would seem very wise for the surgeon and medical man to consult before the operating room is called. In this situation, excellent judgment was shown by the surgeon in charge of the case.

The patient may have had appendicitis associated with the mononucleosis, but the symptoms and signs of the disease gradually subsided. He is still being studied for a possible recurrence of appendicial disease.

DR. ABBISS:

I haven't seen any deaths from infectious mononucleosis, and I believe they are quite rare. In fact, you can't find a good account of the pathology from autopsy material even in the literature. I would like to say a word about the heterophile antibody test that Dr. Bohan mentioned.

This is a very valuable test; it's a test for an antibody found in a certain percentage (I think about 80%) of these infectious mononucleosis patients and this antibody has the property of agglutinating sheep's red cells. Now, it does occur in other diseases, for example, in serum sickness, and I should mention the fact that when you get a raised titre, and anything over 1:56 is to be regarded as abnormal, that does not say the disease is infectious mononucleosis, and to get a better indication, one should request then a differential agglutination test of Davidshon's (Chicago).

In this test, we first absorb the serum with beef red cells and also with guinea pig kidney, and the point here is that if we have a true heterophile antibody of infectious mononucleosis, the antibody will not be absorbed by the guinea pig kidney more than one tube back, whereas, with the beef cell, it will be completely absorbed. So let's say for example, you have a titre reported of positive in 1:112. You request the absorption test (and that is quite a low titre, incidentally), and we find then that after absorption with the beef red cell antigen, there will be no agglutination, no titre. With the guinea pig, it may drop back to 1:56, but that would be regarded as a postive test. In most cases, the titres go far higher, and after the antibody absorption, it should perhaps drop back a tube or a couple of tubes of the guinea pig kidney and be completely absorbed by the beef red cells.

Now this differential testing is reversed in other diseases, but we won't go into that. That kind of result with a raised titre is specific for infectious mononucleosis. The other thing we might say about this disease is, of course, the abnormal cells that one finds in the blood, some very frequently. This disease is important because of this feature. Often a patient has a sore throat, nodes in the neck, an enlarged spleen, and one gets a report of abnormal lymphocytes. Of course, the first thing one thinks about is leukemia, particularly since the disease occurs so often in young people.

The cells are very abnormal, and to the unpracticed eye, they may be diagnosed as leukemic cells; they may be called lymphoblasts, for example, but a person with experience can usually pick them out, and, indeed, suggest the diagnosis, simply by examination of a blood smear, when these abnormal cells are present, and in the classical case, one will have both abnormal cells and the heterophile antibody. I think that in any case of abnormal cells in childhood, one should certainly have a heterophile antibody test done, even though a diagnosis of leukemia has been made from the smear. Sometimes, the count goes up around 100,000 white cells in this disease; it can be a dead-ringer for leukemia.

Dr. Hughes:

This case presented was a problem in diagnosis. On the day of admission, he had a condition compatible with appendicitis. In doubtful cases, it is wise to observe a patient for 24 to 48 hours and very often the developing clinical picture will confirm or rule out the diagnosis of appendicitis. For this patient, an operation may well have proven disastrous in view of his damaged liver. Thus, at times, acute appendicitis may be a difficult diagnosis to make.

The operation of appendectomy is only about two centuries old. In reviewing the subject, I find that the first appendectomy was done over 220 years ago in 1735 by an Englishman, Dr. Claudius Amyand[3] at St. George's Hospital. This was reported in the Philosophical Transactions of the Royal Society, and this appendix was found in a draining hernial sac. During the operative procedure, he found the appendix and tied off the base. The patient was cured; the drainage of pus completely stopped. The operation didn't take over a half hour. The hernia recurred. This patient was an 11 year old boy.

The first appendectomy done in this country was done by R. N. Hall in 1886 at the Roosevelt Hospital in New York.[4] Dr. John B. Deaver had this comment to make: ". . . That a knowledge of the pathology of the vermiform appendix slumbered, nay, even hibernated, from the time of Melier in 1827, who cites the work of Amyand 92 years earlier, until the day of Fitz, is one of the most remarkable things in the whole history of medicine".

Cantrell[5] of Johns Hopkins says that 20% to 25% of normal appendices in patients with pre-operative diagnosis of acute appendicitis should not be looked upon as an unreasonable figure, but a necessary evil. The mortality of appendicitis involves first of all, the mortality of general anesthesia, and this runs 0.08%. In unperforated appendices in a collected series of 5,676 cases, the mortality was 0.23%. In perforated cases (also reported from Johns Hopkins from 1928 to 1931) there were 85 cases, and they had a 19% mortality. From 1947 to 1954, they had 219 cases and they had a 3% mortality.

Dr. Abbiss, do you have something to say about normal appendices?

Dr. Abbiss:

The question of normal appendix is always a difficult one; it puts the pathologist on the spot. I don't report them as normal, I just report them as "vermiform appendix". That's non-committal, and doesn't put me on the wire, and obviously, if we are going to make a flat statement "this appendix is normal", we'd have to examine the whole thing end to end by multiple sections.

There has been some work out recently by Rudy Schenken from Omaha, in which he's described focal appendicitis: very small areas of ulceration with tiny inflammatory exudates attached to the ulcerated area within the lumen of the appendix, and this apparently can give rise to symptoms. We have found some of that kind of appendicitis, and, on one occasion, a well known surgeon was quite shocked when I found it. He swore the appendix was normal, which is rather a reversal of what one usually has to do. This has one important point, and that is if we're going to find these minimal cases, the lead we get when examining the specimen grossly is by the presence of maybe a little bead of pus, and if the surgeon opens the appendix in the operating room that inflammatory exudate may be washed off, and it may wash away the only clue the pathologist has, because he sees no abnormality, he simply takes random sections.

Incidentally, I make a practice of taking a section from every appendix, whether it's apparently normal or not, from the tip and from somewhere along its lumen. I know some men don't bother to do that; if it looks normal, they call it normal, but I do take a section just to have something for the record. In these minimal cases, it's important not to open the appendix and look at it, no matter how great the temptation is, in the operating room. Incidentally, I always take an opened appendix as a bad sign, the last resort, taking the appendix to try and find out where the inflammation was. To me, acute inflammation means edema, dilatation of blood vessels, the presence of polymorphonuclear leukocytes, and so on, in other words, all the cardinal signs, histological signs, of an acute inflammatory process. Less than that I do not recognize. I don't recognize "subacute appendicitis"—I recognize resolving acute appendicitis. Chronic appendicitis I never report.

DR. HUGHES:

As Dr. Bohan pointed out, the prothrombin test is a very sensitive one, and the details must be carefully followed. Dr. Abbiss, how often should the reagent for determination of prothrombin time be made up?

DR. ABBISS:

The reagent should be made up freshly every day. . . . The test has a very tricky end-point, and ideally, in a given institution, it should be done by the same person every day, if you're going to get reproducible results. That often, unfortunately, is impossible. You may get variations there. We're using the Symplastin technique here which is perhaps the most simple. It avoids the making up of two solutions.

(Other members of the Surgical Department entered into the discussion.)

DR. HUGHES:

This meeting today points up the fact that even though appendicitis is a common condition the surgeon must always be wary of operating on a patient with a serious condition which can best be treated medically.

I wish to thank those present for their interest and thorough coverage of the agenda.

N.B. Recently, an appendectomy was done for apparent recurrent appendicitis. At this time, the patient's liver had returned to normal size. The van den Bergh direct reaction was slightly positive. There was 1.0 mg. of bilirubin. The heterophile antibody reaction was positive in dilution 1:50 and the prothrombin time was normal. The sedimentation rate was normal and a complete blood count showed a predominancy of lymphocytes over the segmented polymorphonuclear leukocytes. Evidently the mononucleosis has not quite subsided.

(The Surgical Staff wishes to thank Miss Ann Moran for her able assistance in compiling this material).

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# THE ADMINISTRATION OF TRYPSIN BUCCALLY IN THE TREATMENT OF INFLAMMATION AND EDEMA*

JOSEPH M. MILLER, M.D., GEORGE C. GODFREY, M.D.,
MILTON GINSBERG, M.D. and CONSTANTINE J. PAPASTRAT, M.D.

Trypsin in aqueous solution produces beneficial results when it is given intramuscularly to patients with inflammation and edema[1]. Innerfield[2,3,4] reported that trypsin administered buccally seemed to provide a simple and an effective method for instituting physiologic processes that resulted in subsidence of edema and other signs of acute inflammation. A tablet was designed to permit slow absorbtion since it was felt that a better effect might be achieved in this manner. The results of treatment were excellent. About one-third of the patients who were treated with such a tablet complained of a tingling sensation along the edge of the tongue or at the site of the buccal application. This complaint was much less severe on the second day of treatment and was practically gone on the third day. A zone of erythema of mild degree appeared often at the site of the application. Treatment had to be discontinued in only two patients because of soreness of the mouth.

The severity of the effects produced by trypsin upon a mucous membrane may be conditioned by the size of the dose and the time it remains at the site before complete absorption occurs. Accordingly, soft tablets containing 2.5 mg. of trypsin were prepared upon the premise that if disintegration of the tablet was rapid, absorption of the enzyme would be accelerated, and the pain and redness of the mucous membrane would be prevented. The supposition was correct for beneficial results were obtained from the use of trypsin in the treatment of inflammation and edema without side effects.

Initially, 2.5 mg. of trypsin were administered every twelve hours for a minimum of three days, and for longer if the status of the clinical condition of the patient demanded it. Subsequently, the patients were given 5 mg. every twelve hours, and later, 5 mg. four times during the hours in which they were awake.

The patient must be carefully instructed how to take the enzyme. The tablet is placed in the buccal pouch and should dissolve in about two to five minutes. The patient should not expectorate and should not swallow the saliva for about five minutes after the tablet has dissolved. The trypsin should not be retained for a period of time longer than five minutes or soreness and redness of the mucous membrane of the mouth will follow. The tablet should not be swallowed since the enzyme will be destroyed by the acid secretions of the stomach.

The empiric observations that profound changes can be produced in inflammation and edema by the administration of trypsin buccally has not been explained by chemical investigations. Trypsin activates plasminogen in the euglobulin fraction of the blood serum to plasmin[5-9]. Plasmin lyses fibrinogen and fibrin. At the present time, the key factor in the reversal of inflammation and edema seems to be the proteolysis induced by plasmin. Apparently, the micro-chemical environment of the involved area is modified sufficiently so that circulation to the site is improved and a greater delivery of the humoral antibodies and of the administered antibacterial drugs occurs. The net results are a regression of the inflammation and an abatement of the edema.

The fact that chemical reactions are reversible may provide a hypothesis for the action of plasmin in the reversal of inflammation and edema. A chemical system which has the capacity to regain its balance exits at all places in the body. When an imbalance is created by an exogenous force, as in the presence of inflammation and edema, macromolecular substances, such as partially polymerized molecules of fibrin, may be deposited in the interstitial tissues. This event may be due to a failure of delivery of the proper proteolytic enzyme to the involved site or its presence in insufficient amount to depolymerize large molecules. This enzyme may be of systemic or of local origin. At the present time, the origin of the enzyme is only of academic importance. It is known that fibrinogen and plasminogen are closely associated for it is difficult to prepare fibrinogen free from plasminogen. All that may be necessary at the involved site is the presence of an activator for plasminogen. A conversion of the zymogen to the enzyme occurs and proteolysis is initiated. If this occurs, the cellulitis will disappear. If digestion of the macromolecular substances does occur, the area becomes isolated from the surrounding tissues by the inflammatory membrane. The necrotic debris in the loculated site is digested by enzymes, which are derived from bacteria, leukocytes, and tissues to form pus.

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* From the Surgical Service, Veterans Administration Hospital, Fort Howard, Maryland.

Forty-four patients with various conditions were treated with trypsin buccally. The dosage of trypsin was varied and the best results were obtained when the patients were given the largest dose used, 5 mg. four times a day during the hours in which they were awake.

Thirty-three patients with infections of various types including two with infections associated with gangrene due to arteriosclerosis were treated with trypsin buccally. Twenty-three patients obtained an excellent result, five good, three fair, and two poor. The two patients with gangrene had a poor result due to a bad blood supply to the involved area.

Eleven patients were given trypsin buccally to prevent the edema which usually follows operations about the head and neck. Nine patients had an excellent result, one good, and one fair. This aspect of the use of proteolytic enzymes has not enjoyed the acceptance to which it is entitled. Where edema is allayed or prevented, healing will be more rapid, and improved cosmetic results will follow.

Forty-three of the forty-four patients treated did not have any side effects from the administration of trypsin buccally. One patient complained of burning in the mouth when the trypsin was given. An area of redness in the mucous membrane was present where the tablet lay during the period of absorption. An investigation revealed that the patient had a lower denture to which the trypsin became adherent and thus the enzyme was incontact with the mucous membrane for a period longer than that which was recommended. Hemorrhage, hematomas, and petechiae were not seen. Some of these patients were pretreated with trypsin for two days before operation and normal clotting of the blood was seen at the time of operation. Three of the patients, who were receiving 5 mg. of trypsin four times a day during the hours in which they were awake, had prothrombin times done and their blood tested for fibrinolysis. The prothrombin times did not change significantly from the normal ones. Fibrinolysis was not observed during the period of observation which was three days.

Results may be improved when trypsin is used prophylactically by starting the drug at least two days before the time of the contemplated operation. When such treatment cannot be given and the patient cannot take trypsin buccally during the period immediately after the operation, trypsin in an aqueous solution should be injected intramuscularly. This can be followed by the administration of the enzyme buccally when the patient can cooperate in taking the drug.

The administration of trypsin buccally modifies the inflammatory barrier about an area of infection. Healing substances may pass more easily into the involved area but bacteria and their products may pass outward at the same time. All patients who are treated with trypsin buccally for in-

(Continued on page 308)

# + Editorials +

## CANCER DETECTION

It is fitting that the subject of cancer detection be reviewed in this issue of The Journal with its symposium on cancer.

Ten years have passed since the establishment of a Cancer Detection Center (CDC) in this state. Its aims and limitations were described in The Journal for August, 1947. Briefly, the aim of the CDC is to make the early diagnosis of cancer while it is still localized and curable. Admittedly, certain obscure cases will be missed. Certainly, persons with any signs or symptoms should not be seen in the CDC but should go to their private physician. The CDC is for apparently healthy persons, not for patients suspected of having cancer.

A Diagnostic Clinic, on the other hand, examines *patients* who are suspected of having cancer. There, the examination is more thorough and also more costly. Clinics of this type estimate their per capita cost to be five times that of the CDC. Withall, certain obscure cases are still missed.

When the CDC finds evidence to justify a tentative diagnosis of malignancy (lump in breast; positive cervical smear; etc.) and when these findings have been transmitted to the private physician, its job is done.

How, then, can the CDC fail in attempting to reach its stated goal? Such failures are few and limited to the occasional obscure case which also might be missed by a more thorough and extensive examination.

How does the entire cancer detection program fail the person who has submitted to examination? The most common cause is the complacency of the private physician — a tendency to procrastinate and "sit tight" for awhile. Many physicians tend to play the law of averages — the Class III cervical smear that *probably* means nothing and the lump in the breast that *probably* is benign. True, many Class III smears are benign but the only way to be *certain* in the individual case is by microscopic examination of an *adequate amount of tissue.* Likewise, the lump in the breast is never benign until the lump itself has been examined microscopically.

The CDC is here to help you help your patient. It has done its part of the job well — let us do ours.

flammation or edema should be given one of the antibacterial drugs to prevent the possible spread of infection.

## SUMMARY

Trypsin given buccally produces a modification of the inflammatory reaction and the absorption of edema. Treatment with trypsin given buccally must be accompanied by the administration of an antibacterial drug. The use of trypsin buccally is not a substitute for sound surgical treatment. Further investigation of the use of trypsin buccally is indicated.

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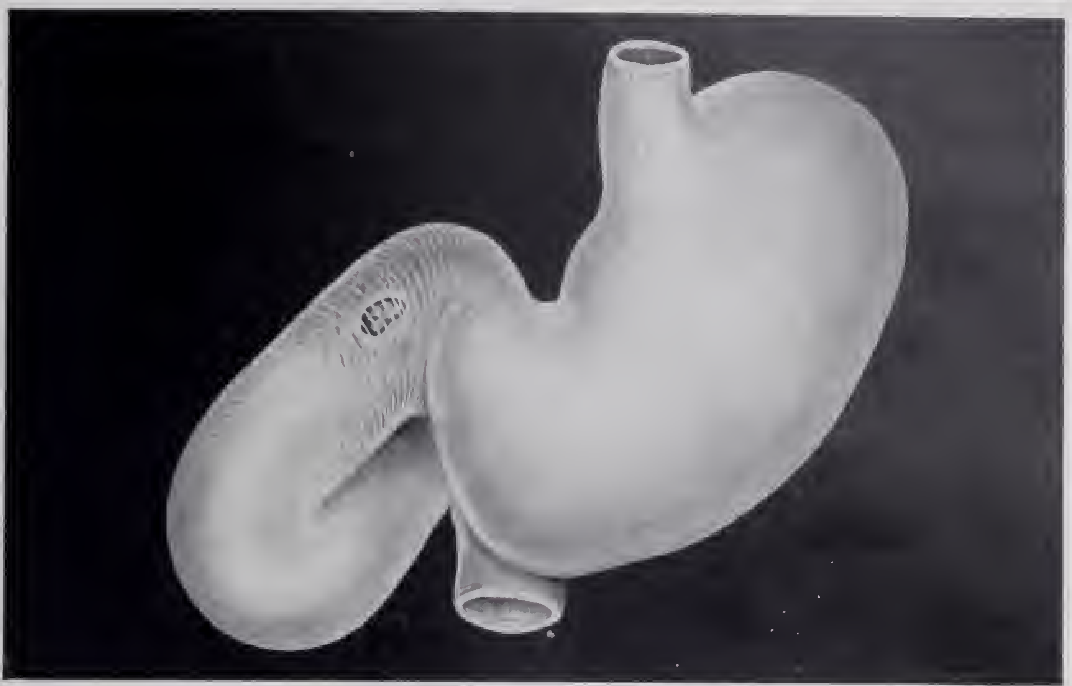

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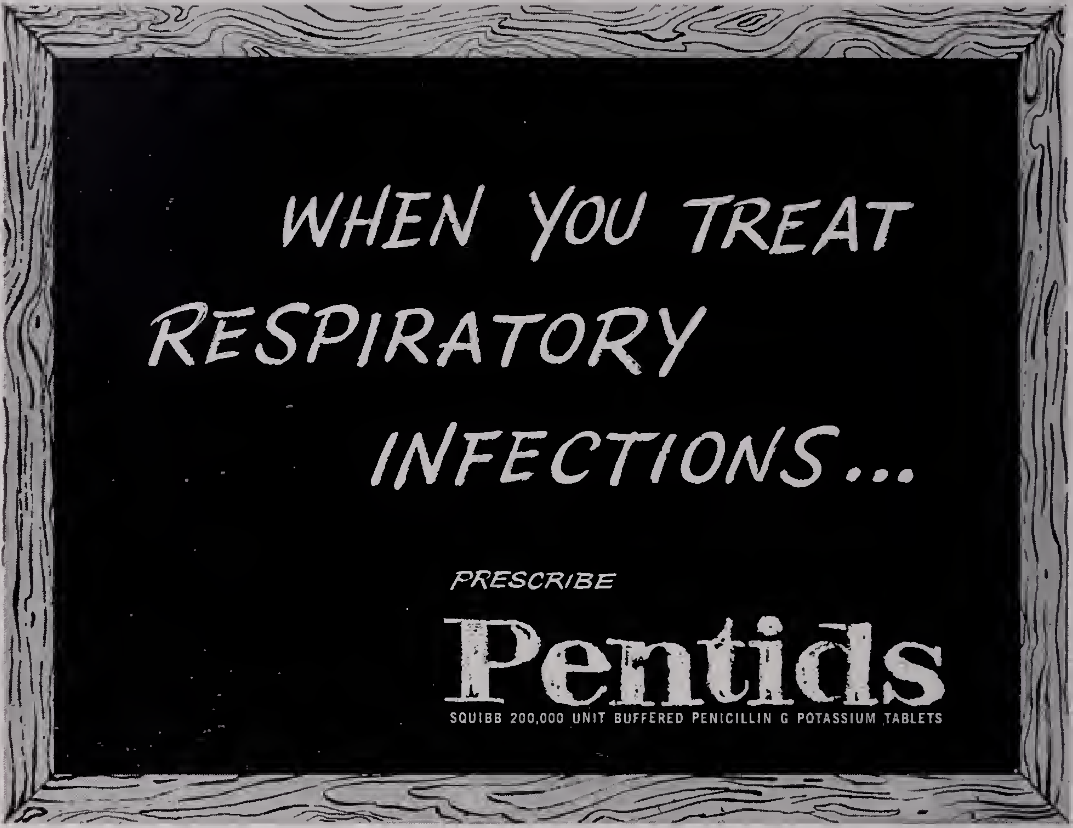
**SEARLE**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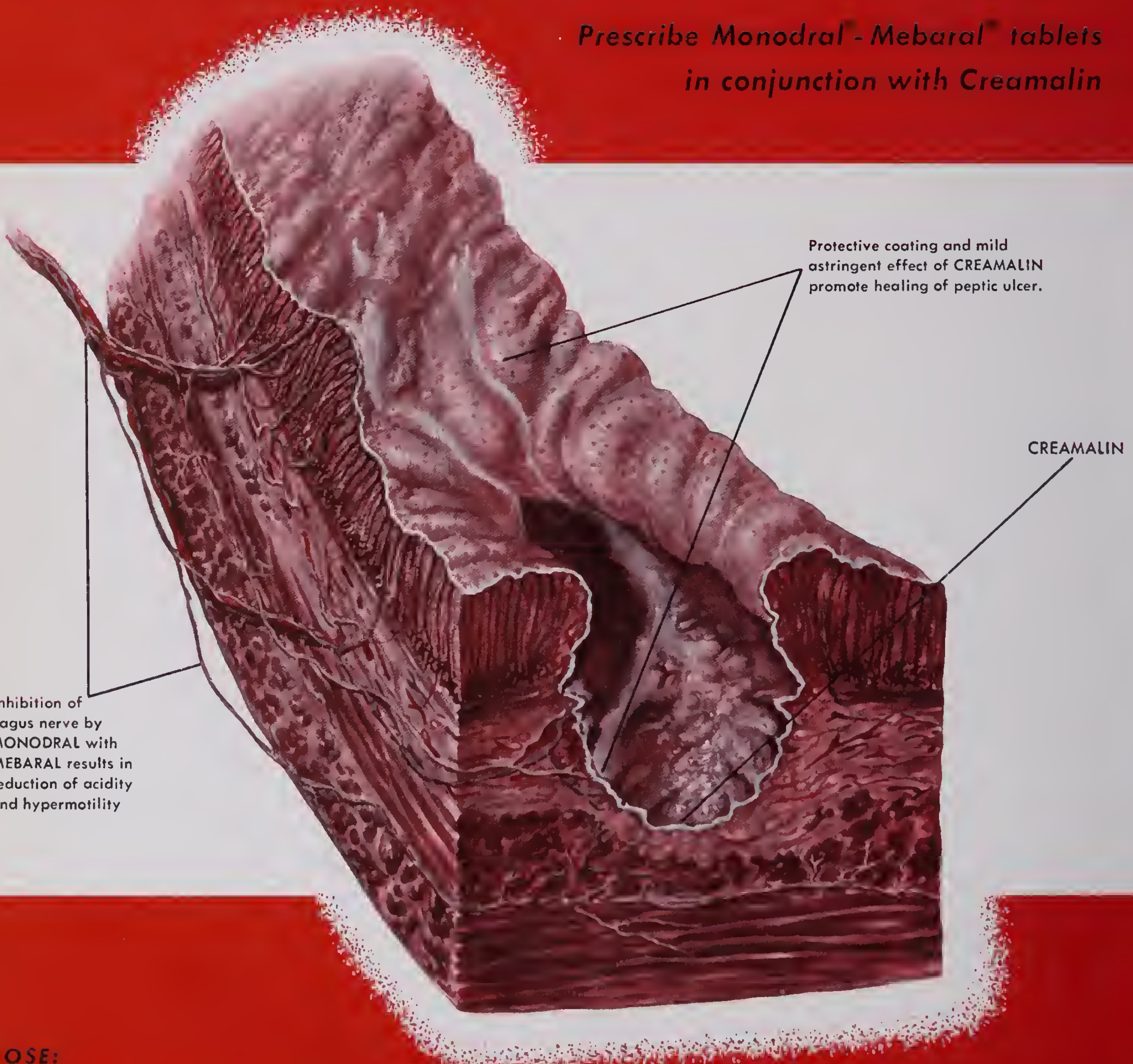
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PETN + ATARAX®

PENTAERYTHRITOL TETRANITRATE

BRAND OF HYDROXYZINE

# CARTRAX*

**links freedom from anginal attacks with a shelter of tranquility**

In pain. Anxious. Fearful. On the road to cardiac invalidism. These are the pathways of angina patients. For fear and pain are inextricably linked in the angina syndrome.

For angina patients—perhaps the next one who enters your office—won't you consider new CARTRAX? This doubly effective therapy combines PETN (pentaerythritol tetranitrate) for lasting vasodilation and ATARAX for peace of mind. Thus CARTRAX relieves not only the anginal pain but reduces the concomitant anxiety.

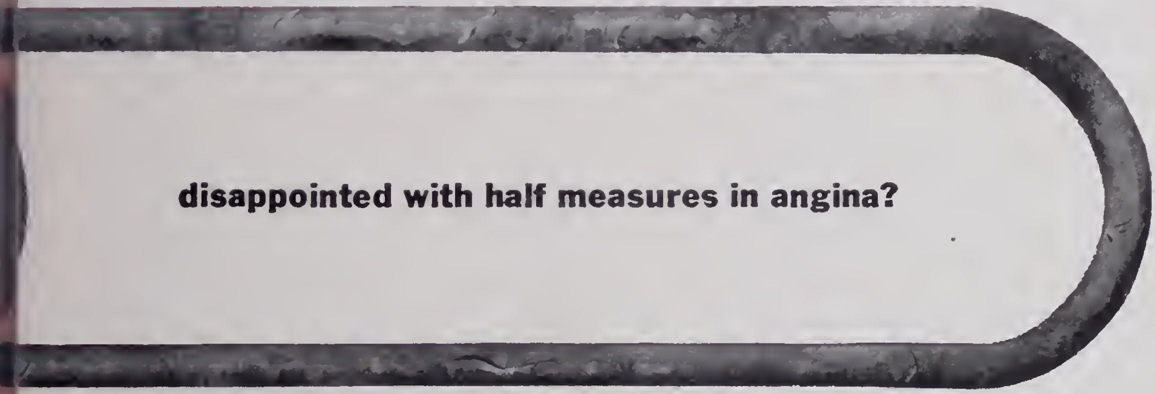
*Dosage and supplied:* begin with 1 to 2 yellow tablets (10 mg. PETN plus 10 mg. ATARAX) 3 to 4 times daily. This may be increased for maximal effect by switching to *pink* tablets (20 mg. PETN plus 10 mg. ATARAX). In bottles of 100.

CARTRAX should be taken *before* meals, on a *continuous* dosage schedule. Use with caution in glaucoma.

New York 17, New York

1. Russek, H. I.: J. Am. Geriat. Soc. *4*:877 (Sept.) 1956.

*Trademark



disappointed with half measures in angina?

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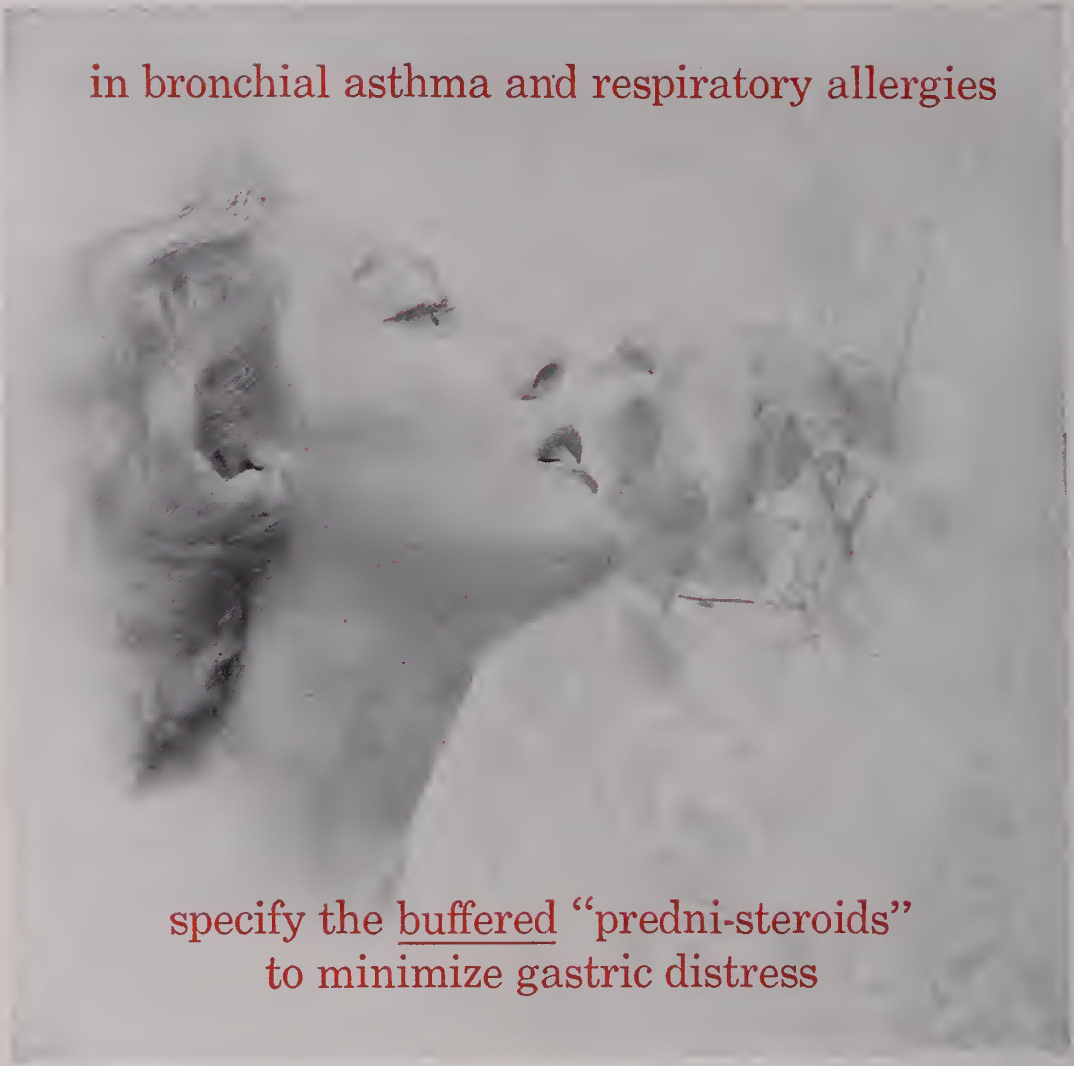
in bronchial asthma and respiratory allergies
specify the buffered "predni-steroids"
to minimize gastric distress

*combined steroid-antacid therapy . . .* **Co-Deltra®**

(Prednisone buffered)

**Co-Hydeltra®**

(Prednisolone buffered)

'Co-Deltra' or 'Co-Hydeltra' provides all the benefits of "predni-steroid" therapy and minimizes the likelihood of gastric distress which might otherwise impede therapy. They provide easier breathing—and smoother control—in bronchial asthma or stubborn respiratory allergies.

**SUPPLIED:** Multiple Compressed Tablets 'Co-Deltra' or 'Co-Hydeltra' in bottles of 30, 100, and 500.

**Multiple Compressed Tablets**

**2.5 mg. or 5.0 mg. of prednisone or prednisolone, plus 300 mg. of dried aluminum hydroxide gel and 50 mg. of magnesium trisilicate.**

'CO-DELTRA' *and* 'CO-HYDELTRA' *are registered trademarks of* MERCK & CO., INC.

MSD

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DIVISION OF MERCK & CO., INC.
PHILADELPHIA 1, PA.

outstanding
appetite
stimulant

INCREMIN*
LYSINE VITAMIN SUPPLEMENT LEDERLE

Problem-eaters, the underweight, and generally below-par patients of all ages respond to INCREMIN.

INCREMIN offers l-Lysine for protein utilization, and essential vitamins noted for outstanding ability to stimulate appetite, overcome anorexia.

Specify INCREMIN in either Drops (cherry flavor) or Tablets (caramel flavor). Same formula. Tablets, highly palatable, may be orally dissolved, chewed, or swallowed. Drops, delicious, may be mixed with milk, milk formula, or other liquid; offered in 15 cc. polyethylene dropper bottle.

*Each* INCREMIN Tablet
or each cc. of INCREMIN Drops *contains:*

| | | | |
|---|---|---|---|
| l-Lysine | 300 mg. | Pyridoxine ($B_6$) | 5 mg. |
| Vitamin $B_{12}$ | 25 mcgm. | (INCREMIN Drops contain 1% alcohol) | |
| Thiamine ($B_1$) | 10 mg. | | |

*Reg. U. S. Pat. Off.

Dosage only 1 INCREMIN TABLET or 10-20 INCREMIN Drops daily.

Lederle

LEDERLE LABORATORIES DIVISION
AMERICAN CYANAMID COMPANY
PEARL RIVER, NEW YORK

unique
derivative of
Rauwolfia
canescens

# Harmonyl*

combines the full effectiveness of the rauwolfias with a new degree of freedom from side effects

Harmonyl makes rauwolfia more useful in your everyday practice. Two years of clinical evaluation have shown this new alkaloid exhibits significantly fewer and milder side effects than reserpine. Yet, Harmonyl compares to the most potent forms of rauwolfia in effectiveness.

*Most significant: Harmonyl causes less mental and physical depression—and far less of the lethargy seen with many rauwolfia preparations.*

Patients became more lucid and alert, for example, in a study[1] of chronically ill, agitated senile cases treated with Harmonyl. And these patients were completely free from side effects — although a group on reserpine developed such symptoms as anorexia, headache, bizarre dreams, shakes, nausea.

Harmonyl has also demonstrated its potency and relative freedom from side effects in hypertension. In a study comparing various forms of rauwolfia[2], the investigators reported deserpidine "an affective agent in reducing the blood pressure of the hypertensive patient both in the mild to moderate, as well as the severe form of hypertension." They also noted that side reactions were "less annoying and somewhat less frequent" with this new alkaloid. Other studies confirm that few cases of giddiness, vertigo or sense of detached existence or disturbed sleep are seen with Harmonyl.

Professional literature on this unique rauwolfia derivative is available upon request. Harmonyl is supplied in 0.1-mg., 0.25-mg. and 1-mg. tablets. Abbott

**References:** 1. Communication to Abbott Laboratories, 1956. 2. Moyer, J. H. et al: Deserpidine for the Treatment of Hypertension, Southern Medical J., 50:499, April, 1957.

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* Trademark for Deserpidine, Abbott

**your patients with generalized gastrointestinal complaints need the comprehensive benefits of**

# Tridal®

(DACTIL® + PIPTAL® – in one tablet)

rapid, prolonged relief throughout the G.I. tract
with unusual freedom from antispasmodic
and anticholinergic side effects

One tablet two or three times a day and one at bedtime. Each TRIDAL tablet contains 50 mg. of Dactil, the *only* brand of N-ethyl-3-piperidyl diphenylacetate hydrochloride, and 5 mg. of Piptal, the *only* brand of N-ethyl-3-piperidyl-benzilate methobromide.

**LAKESIDE**

14357

for "This Wormy World"

*Pleasant tasting*

**'ANTEPAR'®** brand

PIPERAZINE

**SYRUP · TABLETS · WAFERS**

*Eliminate* **PINWORMS IN ONE WEEK**
**ROUNDWORMS IN ONE OR TWO DAYS**

**PALATABLE • DEPENDABLE • ECONOMICAL**

**'ANTEPAR' SYRUP** – Piperazine Citrate, 100 mg. per cc.
**'ANTEPAR' TABLETS** – Piperazine Citrate, 250 or 500 mg., scored
**NEW 'ANTEPAR' WAFERS** – Piperazine Phosphate, 500 mg.

*Literature available on request*

**BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, N. Y.**

*Corrosion preparation showing complex arterial network of the kidney.*

*direct/effective* **"THIOSULFIL"®**

(Brand of sulfamethizole)

***Single sulfonamide features efficacy and safety in long-term therapy of urinary tract infections.*** The exceptionally high solubility of "Thiosulfil," complete absorption, minimal acetylation, and negligible penetration into red blood cells insure rapid and effective bacteriostatic activity at the site of infection with virtually no side effects.

Ayerst Laboratories · New York, N. Y. · Montreal, Canada

# "MYSOLINE"®

Brand of Primidone

## in epilepsy

safety... without the shadow of doubt

Three years of successful clinical use in the United States without any reported irreversible toxic effect confirms the safety and effectiveness of "Mysoline" in controlling grand mal and psychomotor attacks. "Mysoline" in epilepsy has world wide acceptance.

Supplied: 0.25 Gm. scored tablets, bottles of 100 and 1,000.

Ayerst® AYERST LABORATORIES • NEW YORK, N. Y. • MONTREAL, CANADA

"Mysoline" is available in the United States by

If
Monilial
overgrowth
is a factor

ACHROSTATIN* V

Tetracycline (phosphate-buffered) and Nystatin

**Combines ACHROMYCIN V with NYSTATIN**

Achrostatin V combines Achromycin† V . . . the new rapid-acting oral form of Achromycin† Tetracycline . . . noted for its outstanding effectiveness against more than 50 different infections . . . and Nystatin . . . the antifungal specific. Achrostatin V provides particularly effective therapy for those patients who are prone to monilial overgrowth during a protracted course of antibiotic treatment.

supplied:
Achrostatin V Capsules contain 250 mg. tetracycline HCl equivalent (phosphate-buffered) and 250,000 units Nystatin.

dosage:
Basic oral dosage (6-7 mg. per lb. body weight per day) in the average adult is 4 capsules of Achrostatin V per day, equivalent to 1 Gm. of Achromycin V.

*Trademark
†Reg. U. S. Pat. Off.

Lederle LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, N. Y.

# *New* Chemotherapy

# ARALEN® *in* RHEUMATOID ARTHRITIS

***Extensive studies of rheumatoid arthritis and related collagen diseases—in this country and abroad—have shown the antimalarial Aralen phosphate to be highly effective and well tolerated in a large percentage of patients.***

### *Clinical Results with Aralen in Rheumatoid Arthritis*

| Author | No. of Cases | Major Improvement | Minor Improvement | No Effect |
|---|---|---|---|---|
| Haydu[1] | 28 | 22 | 5 | 1 |
| Rinehart[2] | 25 | 12 | 4 | 9 |
| Freedman[3] | 50 | 43 | 3 | 4 |
| Bagnall[4] | 108 | 77 | 12 | 19 |
| Bruckner[5] | 36 | 32 | 0 | 4 |
| Cohen and Calkins[6] | 22 | 17 | 3 | 2 |
| Scherbel et al.[7] | 25 | 9 | 8 | 8 |
| Total | 294 | 212 (72%) | 35 (12%) | 47 (16%) |

- Success dependent upon persistent treatment
- Often of benefit where other agents have failed
- Remissions on therapy well maintained
- Remission of 3 to 12 months possible even if treatment is interrupted
- Tachyphylaxis not evident

## *GENERAL EFFECTS:*

- Patient feels better
- Patient looks better
- Exercise tolerance increases
- Walking speed and hand grip improves

## *LABORATORY EFFECTS:*

- E. S. R. may fall slowly

## *ANALGESICS AND STEROIDS:*

- Requirements usually reduced or eliminated

## *JOINT EFFECTS:*

- Pain and tenderness relieved
- Mobility increases
- Swellings diminish or disappear
- Muscle strength improves
- Rheumatic nodules may disappear
- Even severe or advanced deformity may improve
- *Active* inflammatory process usually subsides
- Joint effusion may diminish

## *DOSAGE:*

Aralen is cumulative in action and requires four to twelve weeks of administration before therapeutic effe become apparent.

Latest information indicates that an initial dai dose of 250 mg. of Aralen phosphate is prefera to the higher doses sometimes recommended. However, if side effects appear, withdraw Aralen for several days until they subside. Reinstate treatment with 125 mg. daily and, if well tolerated, increase to 250 mg The usual maintenance dose is 250 mg. daily.

# New Chemotherapy

**INDICATIONS:**

- Rheumatoid arthritis, acute or chronic —with or without adjunctive therapy.
- Spondylitis
- Arthritis associated with lupus erythematosus or psoriasis

**THEORY OF ACTION:**

Aralen appears to suppress or induce remission of rheumatoid inflammatory processes by inhibiting adenosinetriphosphatase.

**HOW SUPPLIED:**

***Aralen phosphate:*** 250 mg. tablets in bottles of 100 and 1000.
125 mg. tablets in bottles of 100.

## Tolerance:

Aralen is usually well tolerated. Toxic effects are usually mild and to date have been transitory in nature, disappearing completely either on continuance or cessation of therapy or on reduction in dosage.

Gastrointestinal disturbances (e.g. nausea, rarely vomiting, diarrhea, abdominal cramps, anorexia) are frequent manifestations of intolerance. Temporary blurring of vision (due to interference with accommodation) is also relatively frequent.

Pleomorphic skin eruptions (e.g. lichenoid, maculopapular, purpuric), although generally mild, may preclude the use of an optimum dosage schedule. If a skin reaction persists on a reduced dosage schedule, or recurs after reinstitution of treatment with gradually increasing doses, discontinue Aralen till the lesion again disappears and consider resuming treatment with Plaquenil® (brand of hydroxychloroquine).

Less frequently transitory vertigo, headache, lassitude, or neurological disturbances, such as nervousness, irritability, emotional change, and nightmares have been reported. Instances of unexplained slight gradual weight loss as the patient's general health and arthritic condition improved have been mentioned. Occasional instances of bleaching (depigmentation) of the hair have been described.

Although an occasional instance of leukopenia, with normal differential count, has been reported (WBC about 3000), it has not proved troublesome because it has always been reversible on discontinuance, or diminution of the dose. Even spontaneous reversal may occur while full dosage is maintained.

## Caution:

Aralen is known to concentrate in the liver and, although hepatic damage has never been reported, the drug should be used with caution in the presence of liver disease. In the presence of severe gastrointestinal, neurological, or blood disorders, the drug should be used with caution or not at all. If such disorders occur during the course of therapy, the drug should be discontinued. Concomitant use of gold or phenylbutazone with Aralen should be avoided because of the tendency of these agents to produce drug dermatitis.

## Clinical Comments:

Of fifty patients receiving Aralen therapy, "43 have become really well; that is, they have no stiffness, and any pain that occurs can reasonably be attributed to use of joints affected by secondary degenerative changes. They have no evidence of joint inflammation, but may have a raised erythrocyte sedimentation rate. They have little or no need for analgesics."
*Freedman*[3]

"One hundred and twenty-five private patients have been carefully followed clinically and haematologically while receiving well over 200 patient-years of chloroquine [Aralen] therapy. The results are considered good in 70%, one-half of these cases being in remission. Improved work performance, sedimentation rate, and hemoglobin levels paralleled the major objective gain in this 70%. 90% of them remained on chloroquine [Aralen] therapy, half for more than two years. Classical peripheral rheumatoid arthritis, spondylitis, arthritis of juvenile onset, and rheumatoid disease with psoriasis, all appeared to respond about equally well.

"It is suggested that chloroquine comes closer to the ideal for long-term, safe, control of rheumatoid disease than any other agent now available."
*Bagnall*[4]

"Out of the 36 rheumatoid arthritis cases we treated . . . favorable results were obtained in 32 cases.
*Bruckner et al.*[5]

**References**

1. Haydu, G.G.: Rheumatoid arthritis therapy: a rationale and the use of chloroquine diphosphate, *Am. J. M. Sc.* 225:71, Jan., 1953.
2. Rinehart, R.E.: Chloroquine therapy in rheumatoid arthritis, *Northwest Med.* 54:713, July, 1955.
3. Freedman, A.: Chloroquine and rheumatoid arthritis, a short-term controlled trial, *Ann. Rheum. Dis.* 15:251, Sept., 1956.
4. Bagnall, A.W.: The value of chloroquine in rheumatoid disease, a four year study of continuous therapy, read at the Ninth International Congress on Rheumatic Diseases in Toronto, Canada, June 23-28, 1957.
5. Bruckner I., and Rosenzweig, S.: Treatment of chronic rheumatoid arthritis with synthetic antimalarials, read at the Ninth International Congress on Rheumatic Diseases in Toronto, Canada, June 23-28, 1957.
6. Cohen, A.S., and Calkins, Evan: A controlled study of chloroquine as an antirheumatic agent, read at the Ninth International Congress on Rheumatic Diseases in Toronto, Canada, June 23-28, 1957.
7. Scherbel, A. L., Schuchter, S.L., and Harrison, J.W.: Comparison of effects of two antimalarial agents, hydroxychloroquine sulfate and chloroquine phosphate,

Winthrop LABORATORIES
NEW YORK 18, N. Y

# SELECTION OF SUITABLE SULFONAMIDE IS OF PRIME IMPORTANCE IN LONG-TERM THERAPY OF URINARY TRACT INFECTIONS

## Drug Must Meet High Standards of Efficacy and Safety

**In recent years sulfonamide therapy for urinary tract infections has gained new popularity because the original drugs have been replaced by more soluble, less toxic and more effective sulfas.[1] Gram for gram, a single sulfonamide featuring high solubility and low acetylation is unsurpassed for efficacy and safety — especially in prolonged therapy.**

An editorial in the Journal of the American Medical Association states that sulfonamides are successful in 90 per cent of urinary tract infections, and ". . . should be tried first."[2] There are many properties a sulfonamide should possess before it can be claimed to be efficacious and safe. "Thiosulfil,"® brand of sulfamethizole, is considered to be one of the ". . . most acceptable sulfonamides for treatment of urinary tract infections . . ."[3]

### Broad Bacteriostatic Index

"Thiosulfil" is effective against most gram negative and gram positive organisms commonly found in the urinary channels.

### High Plasma — Urine Levels

"Thiosulfil" is rapidly absorbed and excreted, achieving high antibacterial levels in the urine and throughout infected tissue, with negligible penetration into red blood cells.

### High Solubility

"Thiosulfil," in both the active and acetylated forms, is highly soluble in urine over a wide pH range, thus permitting effective action with minimal side effects. Alkalinization is not required; fluids may be restricted rather than forced.

### Low Acetylation

"Thiosulfil" is virtually unacetylated. As much as 90-95 per cent remains in the free therapeutically active form. Virtually all of a given dose is therefore available for antibacterial action.

In a long-term clinical study, patients with incurable chronic urinary infections were kept symptom free for as long as five or six years on a maintenance dose of one or two tablets of "Thiosulfil" daily.[4] In another evaluation, 20 patients were given 25-100 grams of "Thiosulfil" over a period of 20-90 days without incidence of side reactions.[5] Goodhope[6] reports that during 30 months of clinical use with "Thiosulfil," no evidence occurred of exanthemata, urticaria, emesis, fever, hematuria and crystalluria.

*Recommended Dosages:* 0.5 Gm. four times daily. The pediatric dosage is 30 to 45 mg. daily per pound of body weight. If voiding occurs during the night, an extra half-dose should be given. Fluids may be restricted rather than forced.

*Availability:* Tablets, 0.25 Gm. (bottles of 100 and 1,000). Suspension, 0.25 Gm. per 5 cc. (bottles of 4 and 16 fl. oz.).

Bibliography on request.

AYERST LABORATORIES
New York, N. Y. • Montreal, Canada

5734

For Speedy Return To Normal Nutrition

Meat...

in the congestive phase of cardiac disease

Meat fits well into the moderate-protein, restricted-sodium, acid-ash diet currently recommended for many patients with congestive cardiac failure.[1]

The protein of meat—in the proportionate arrangement of its essential amino acids—closely approaches the quantitative proportions needed to promote human tissue synthesis and repair. For this reason lean meat proves important in maintaining positive nitrogen balance without excessive protein intake.

The sodium content of meat prepared without added salt is relatively low. Per 100 grams, beef muscle meat shows approximately 50 mg. of sodium, lamb 90 mg., pork 60 mg., and veal 50 mg.[2]

The acid ash of meat aids in the promotion of diuresis.

The easy digestibility of meat is a prime requisite of foods specified for the patient with congestive cardiac disease.

In addition to these important features, meat contributes other nutritional factors essential in any convalescence—the B vitamins thiamine, riboflavin, niacin, pantothenic acid, $B_6$, and $B_{12}$, and the minerals iron, phosphorus, potassium, and magnesium.

---

1. Odell, W. M.: Nutrition in Cardiovascular Disease, in Wohl, M. C., and Goodhart, R. S.: Modern Nutrition in Health and Disease, Philadelphia, Lea & Febiger, 1955, p. 699.
2. Bills, C. E.; McDonald, F. G.; Niedermeier, W., and Schwartz, M. C.: Sodium and Potassium in Foods and Waters, J. Am. Dietet. A. *25:*304 (Apr.) 1949.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago...Members Throughout the United States

*for certain disorders of menstruation and pregnancy*

**TRULY EFFECTIVE PROGESTATIONAL THERAPY BY MOUTH**

# NORLUTIN

T.M.

(norethindrone, Parke-Davis)

***oral* progestogen**
***with***
***unexcelled potency***
***and***
***unsurpassed efficacy***

Now, with small oral doses of this new and distinctive progestogen, you can produce the clinical effects of injected progesterone. In amenorrheic women for example, "As little as 50 mg. of [NORLUTIN] administered in divided doses over a five-day period was sufficient to induce withdrawal bleeding."[1]

***CASE SUMMARY***[2]

Amenorrhea of 4 years' duration in a 24-year-old married woman. A course of 10 mg. NORLUTIN twice daily for 5 days was followed after 3 days by menses lasting about 5 days. Since no spontaneous menstruation occurred during the following 35 days, she was given another course of treatment with NORLUTIN, 10 mg. twice daily for 5 days. This was followed by menses.

When this patient was given ethisterone, 40 mg. twice daily for 5 days, no bleeding had ensued when she was seen 41 days later.

**INDICATIONS FOR NORLUTIN:** conditions involving deficiency of progestogen such as primary and secondary amenorrhea, menstrual irregularity, functional uterine bleeding, endocrine infertility, habitual abortion, threatened abortion, premenstrual tension, and dysmenorrhea.

**PACKAGING:** 5-mg. scored tablets (C. T. No. 882), bottles of 30.

**REFERENCES:** (1) Greenblatt, R. B.: *J. Clin. Endocrinol.* 16:869, 1956. (2) Hertz, R.; Waite, J. H., & Thomas, L. B.: *Proc. Soc. Exper. Biol. & Med.* 91:418, 1956.

**PARKE, DAVIS & COMPANY**
**DETROIT 32, MICHIGAN**

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PHENAPHEN® PLUS

Phenaphen Plus is the physician-requested combination of Phenaphen, plus an antihistaminic and a nasal decongestant.

Available on prescription only. Robins

| each coated tablet contains: Phenaphen | |
|---|---|
| Phenacetin (3 gr.) | 194.0 mg. |
| Acetylsalicylic Acid (2½ gr.) | 162.0 mg. |
| Phenobarbital (¼ gr.) | 16.2 mg. |
| Hyoscyamine Sulfate | 0.031 mg. |
| | plus |
| Prophenpyridamine Maleate | 12.5 mg. |
| Phenylephrine Hydrochloride | 10.0 mg. |

when anxiety and tension "erupts" in the G. I. tract...

IN ILEITIS

PATHIBAMATE*

Meprobamate with PATHILON® Lederle

*Combines* Meprobamate (*400 mg.*) the most widely prescribed tranquilizer . . . helps control the "emotional overlay" of ileitis — without fear of barbiturate loginess, hangover or habituation . . . *with* PATHILON (*25 mg.*) the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

*Dosage:* 1 tablet t.i.d. at mealtime. 2 tablets at bedtime. *Supplied:* Bottles of 100, 1,000.

*Trademark ® Registered Trademark for Tridihexethyl Iodide Lederle

Lederle LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK

EVERY WOMAN

WHO SUFFERS

IN THE

MENOPAUSE

DESERVES

"PREMARIN"®

*widely used*

*natural, oral*

*estrogen*

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*Of Fine Foods*

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PROTECTION AGAINST LOSS OF INCOME FROM ACCIDENT & SICKNESS AS WELL AS HOSPITAL EXPENSE BENEFITS FOR YOU AND ALL YOUR ELIGIBLE DEPENDENTS.

ALL PREMIUMS COME FROM PHYSICIANS SURGEONS DENTISTS ALL BENEFITS GO TO

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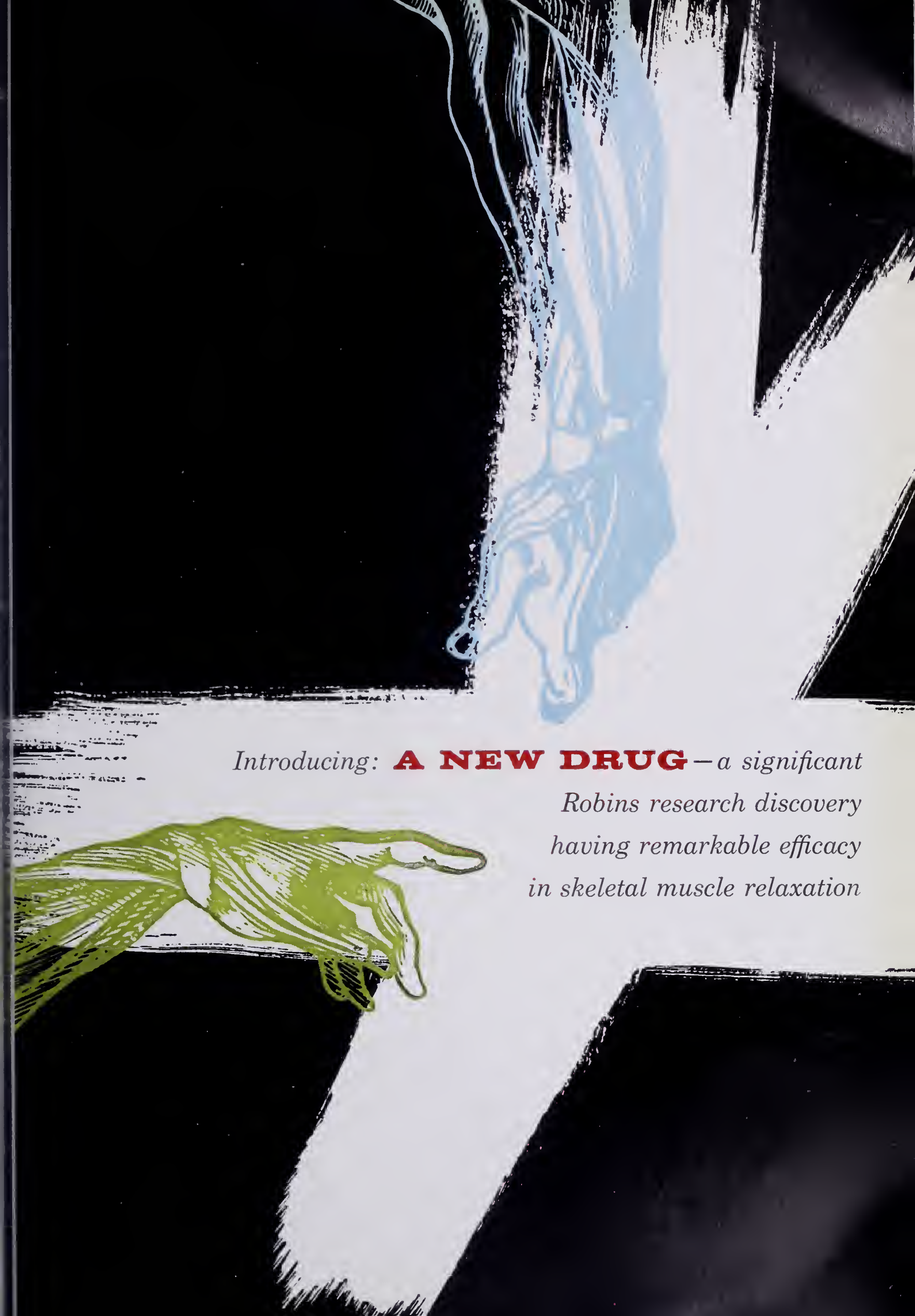


*Introducing:* **A NEW DRUG** *– a significant*
*Robins research discovery*
*having remarkable efficacy*
*in skeletal muscle relaxation*

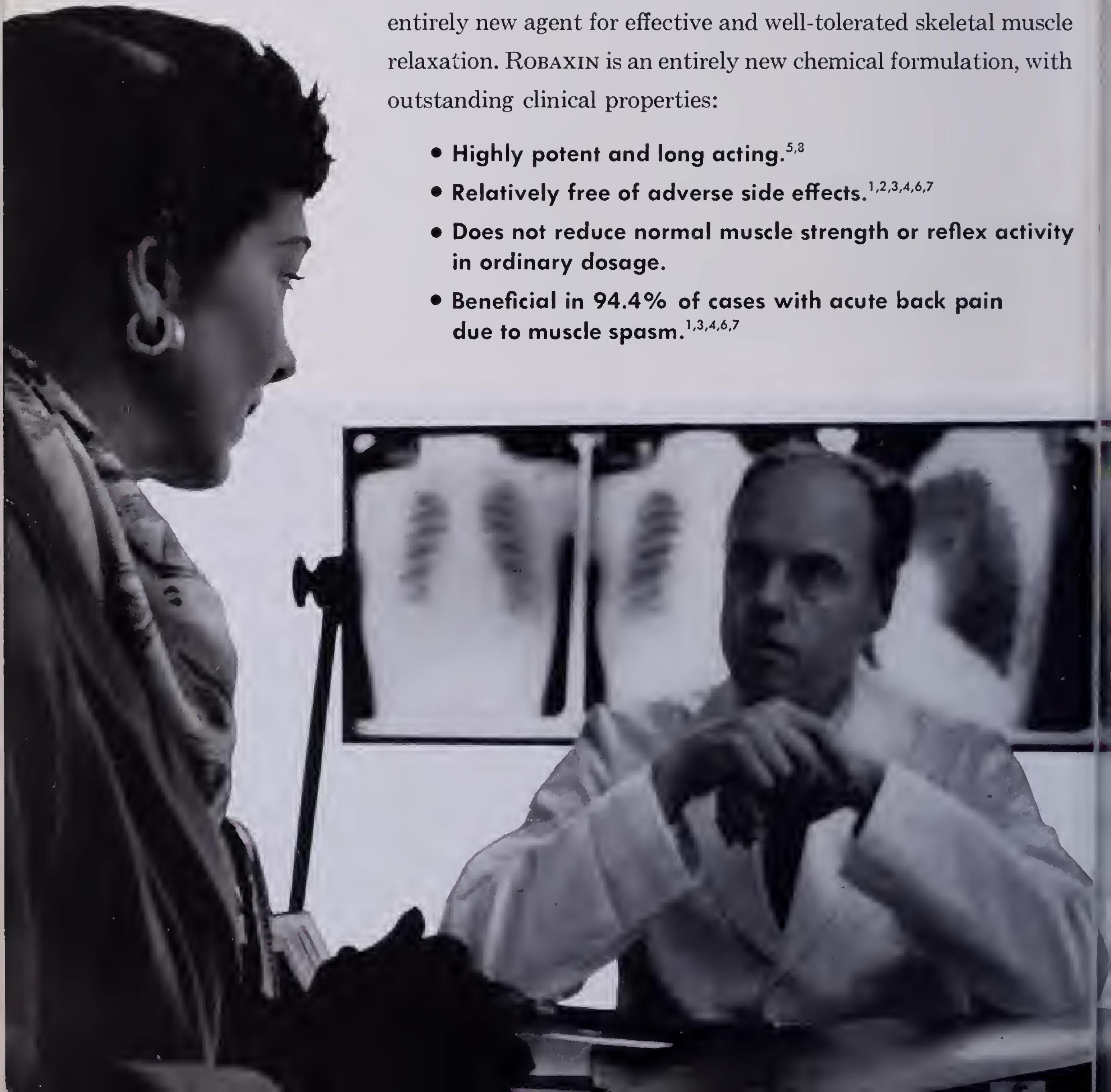
Significant Robins research discovery:

*a highly efficient skeletal muscle relaxant*

# Ro

Robaxin – synthesized in the Robins Research Laboratories, and intensively studied for five years – introduces to the physician an entirely new agent for effective and well-tolerated skeletal muscle relaxation. Robaxin is an entirely new chemical formulation, with outstanding clinical properties:

- **Highly potent and long acting.**[5,8]
- **Relatively free of adverse side effects.**[1,2,3,4,6,7]
- **Does not reduce normal muscle strength or reflex activity in ordinary dosage.**
- **Beneficial in 94.4% of cases with acute back pain due to muscle spasm.**[1,3,4,6,7]



# baxin®

(Methocarbamol Robins, U.S. Pat. No. 2770649)

### *Highly specific action*

Robaxin is highly specific in its action on the internuncial neurons of the spinal cord – with inherently sustained repression of multisynaptic reflexes, but with no demonstrable effect on monosynaptic reflexes. It thus is useful in the control of skeletal muscle spasm, tremor and other manifestations of hyperactivity, as well as the pain incident to spasm, without impairing strength or normal neuromuscular function.

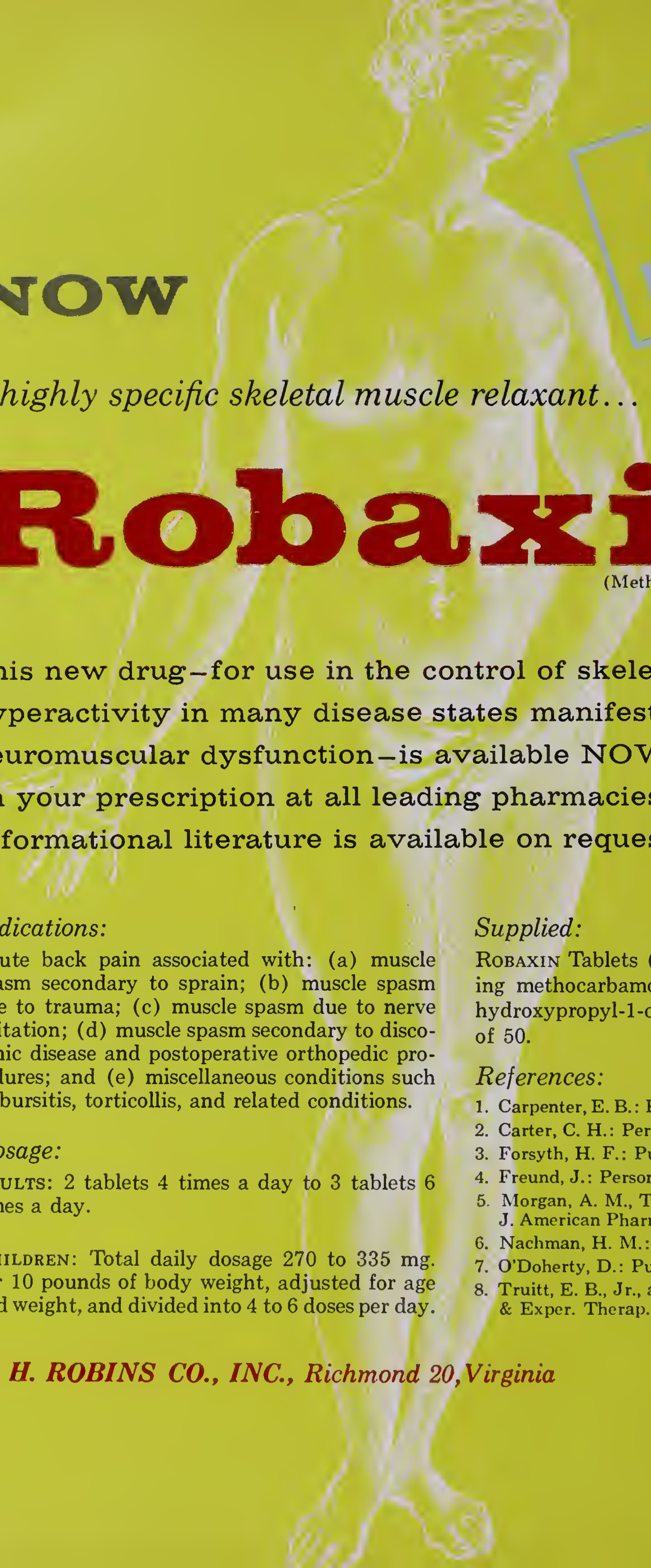
### *Beneficial in 94.4% of cases tested*

When tested in 72 patients with acute back pain involving muscle spasm, Robaxin induced marked relief in 59, moderate relief in 6, and slight relief in 3 – or an over-all beneficial effect in 94.4%.[1,3,4,6,7] No side effects occurred in 64 of the patients, and only slight side effects in 8. In studies of 129 patients, moderate or negligible side effects occurred in only 6.2%.[1,2,3,4,6,7]

### CLINICAL RESULTS WITH ROBAXIN IN ACUTE BACK PAIN[1,3,4,6,7]

| sease entity | No. of Cases | Duration of Treatment | Dose per day (divided) | Response | | | | Side Effects |
|---|---|---|---|---|---|---|---|---|
| | | | | Marked | Mod. | Slight | Neg. | |
| ute back pain due to | | | | | | | | |
| Muscle spasm secondary to sprain | 18 | 2-42 days | 3-6 Gm. | 17 | 1 | 0 | 0 | None, 16;<br>Dizziness, 1;<br>Slight nausea, 1. |
| Muscle spasm due to trauma | 13 | 1-42 days | 2-6 Gm. | 8 | 1 | 3 | 1 | None, 12;<br>Nervousness, 1. |
| Muscle spasm due to nerve irritation | 5 | 4-240 days | 2.25-6 Gm | 4 | 1 | 0 | 0 | None, 5. |
| Muscle spasm secondary to discogenic disease and postoperative orthopedic procedures | 30 | 2-28 days | 1.5-9 Gm. | 24 | 3 | 0 | 3 | None, 25;<br>Dizziness, 1;<br>Lightheadedness, 2<br>Nausea, 2.* |
| scellaneous (bursitis, torticollis, etc.) | 6 | 3-60 days | 4-8 Gm. | 6 | 0 | 0 | 0 | None, 6. |
| TOTAL | 72 | | | 59 | 6 | 3 | 4 | |

*Relieved on reduction



A PRODUCT OF
ROBINS
RESEARCH

# NOW

*a highly specific skeletal muscle relaxant...*

# Robaxin® Robins

(Methocarbamol Robins)

This new drug–for use in the control of skeletal muscle hyperactivity in many disease states manifesting neuromuscular dysfunction–is available NOW on your prescription at all leading pharmacies. Informational literature is available on request.

*Indications:*

Acute back pain associated with: (a) muscle spasm secondary to sprain; (b) muscle spasm due to trauma; (c) muscle spasm due to nerve irritation; (d) muscle spasm secondary to discogenic disease and postoperative orthopedic procedures; and (e) miscellaneous conditions such as bursitis, torticollis, and related conditions.

*Dosage:*

ADULTS: 2 tablets 4 times a day to 3 tablets 6 times a day.

CHILDREN: Total daily dosage 270 to 335 mg. per 10 pounds of body weight, adjusted for age and weight, and divided into 4 to 6 doses per day.

*Supplied:*

ROBAXIN Tablets (white, scored), each containing methocarbamol [3-(o-methoxyphenoxy)-2-hydroxypropyl-1-carbamate], 0.5 Gm. Bottles of 50.

*References:*

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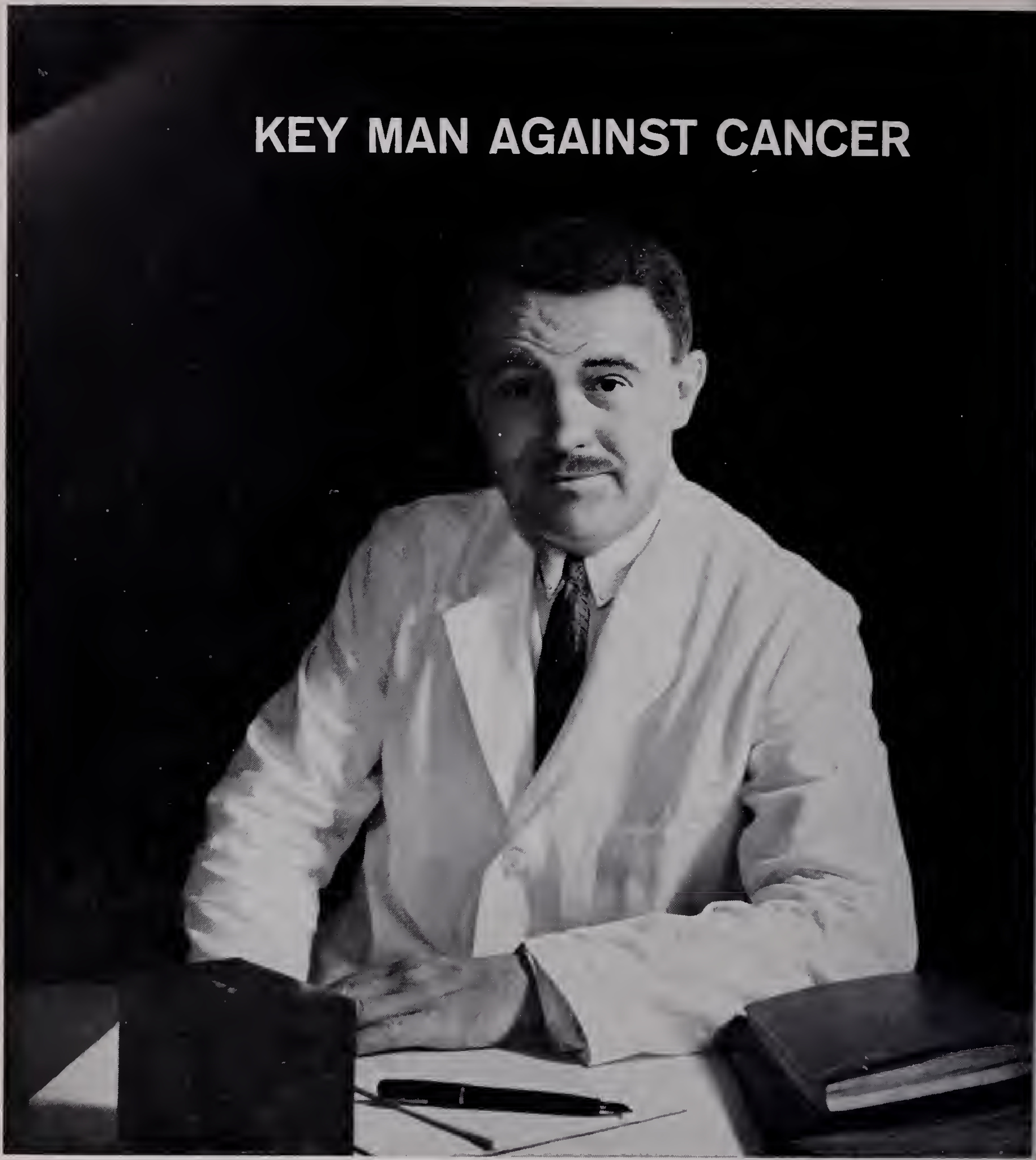

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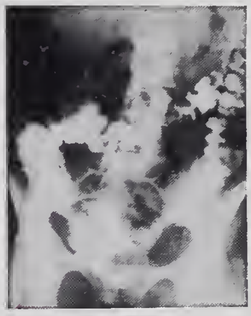

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1. Hodges, F. T.: GP, *14*:86, Nov., 1956.

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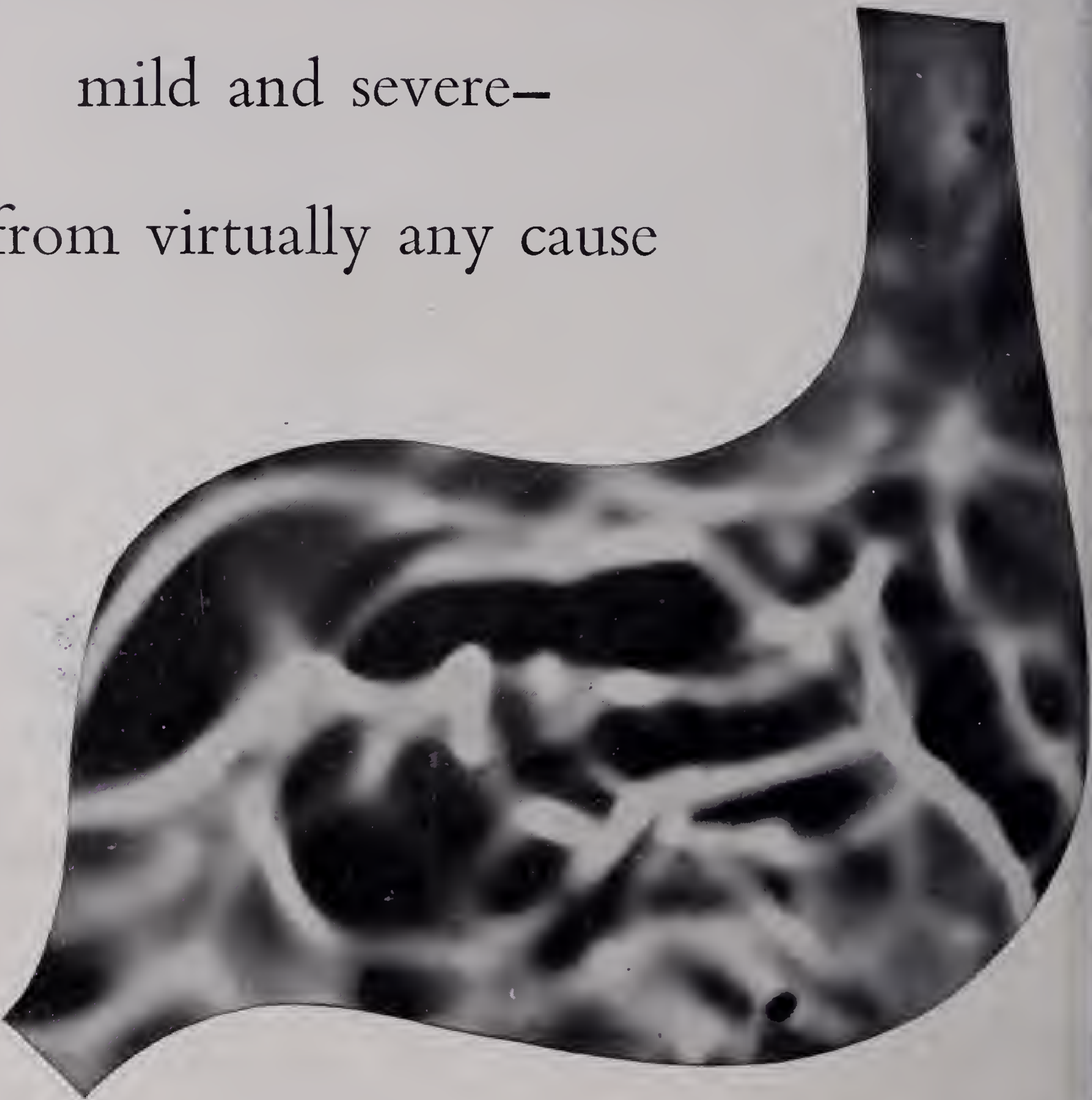

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# DELAWARE STATE MEDICAL JOURNAL

*Official Organ of the Medical Society of Delaware*
INCORPORATED 1789

VOLUME 29 DECEMBER, 1957 NUMBER 12

## REPORT OF HOUSE OF DELEGATES

Complete Contents on Page iv

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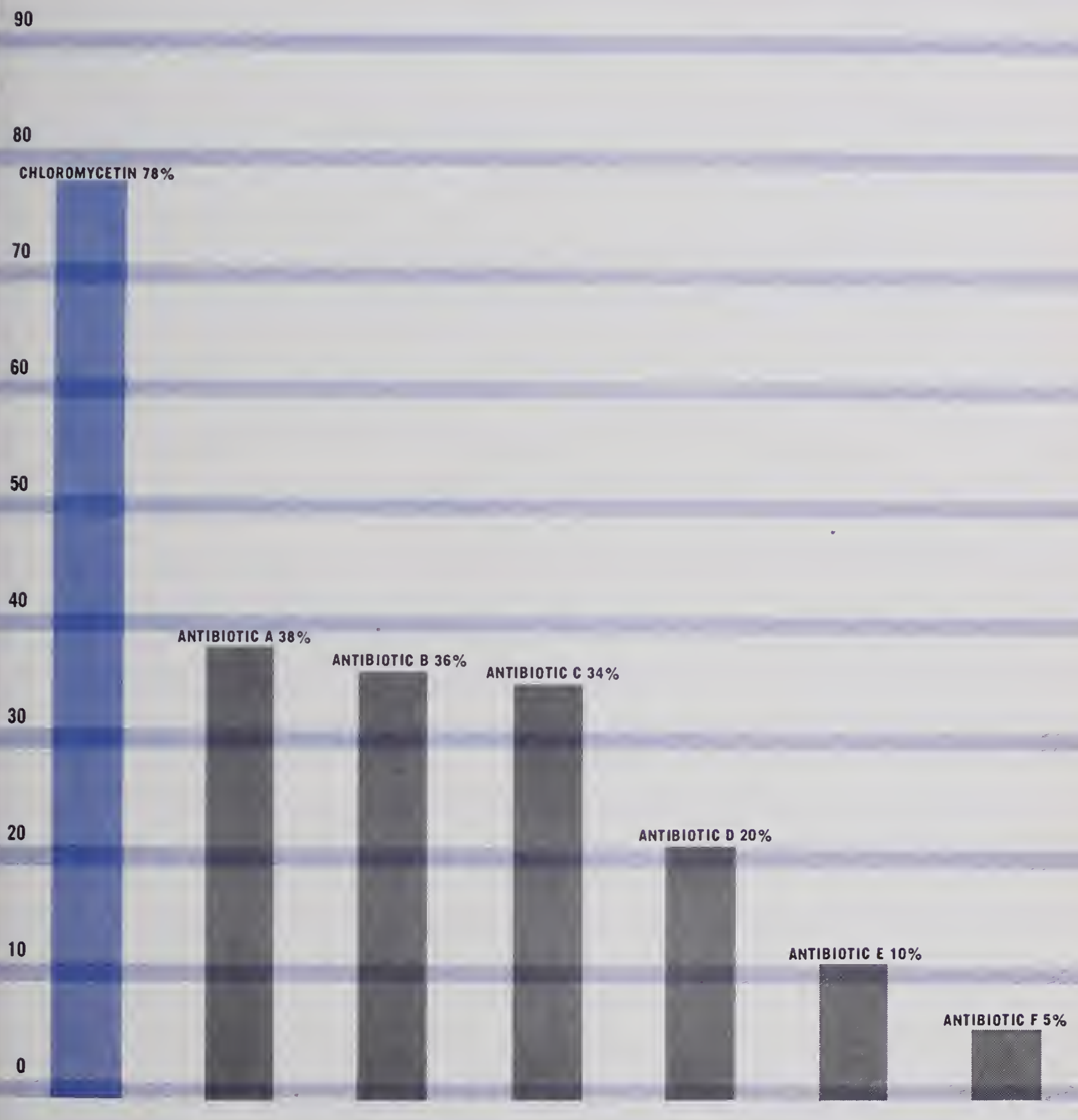

*This graph is adapted from Waisbren and Strelitzer.[15] It represents *in vitro* data obtained with clinical material isolated between the years 1951 and 1956. Inhibitory concentrations, ranging from 3 to 25 mcg. per ml., were selected on the basis of usual clinical sensitivity.

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Levi, W. M., and Kredel, F. E.: J. South Carolina M. A. 53:178 (May) 1957.

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Winton, S. S., and Chesrow, E.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 55.

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LaCaille, R. A., and Prigot, A.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 67.

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Frank, L., and Stritzler, C.: Antibiotic Med. & Clin. Therapy 4:419 (July) 1957.

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Loughlin, E. H., and Mullin, W. G.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 63.

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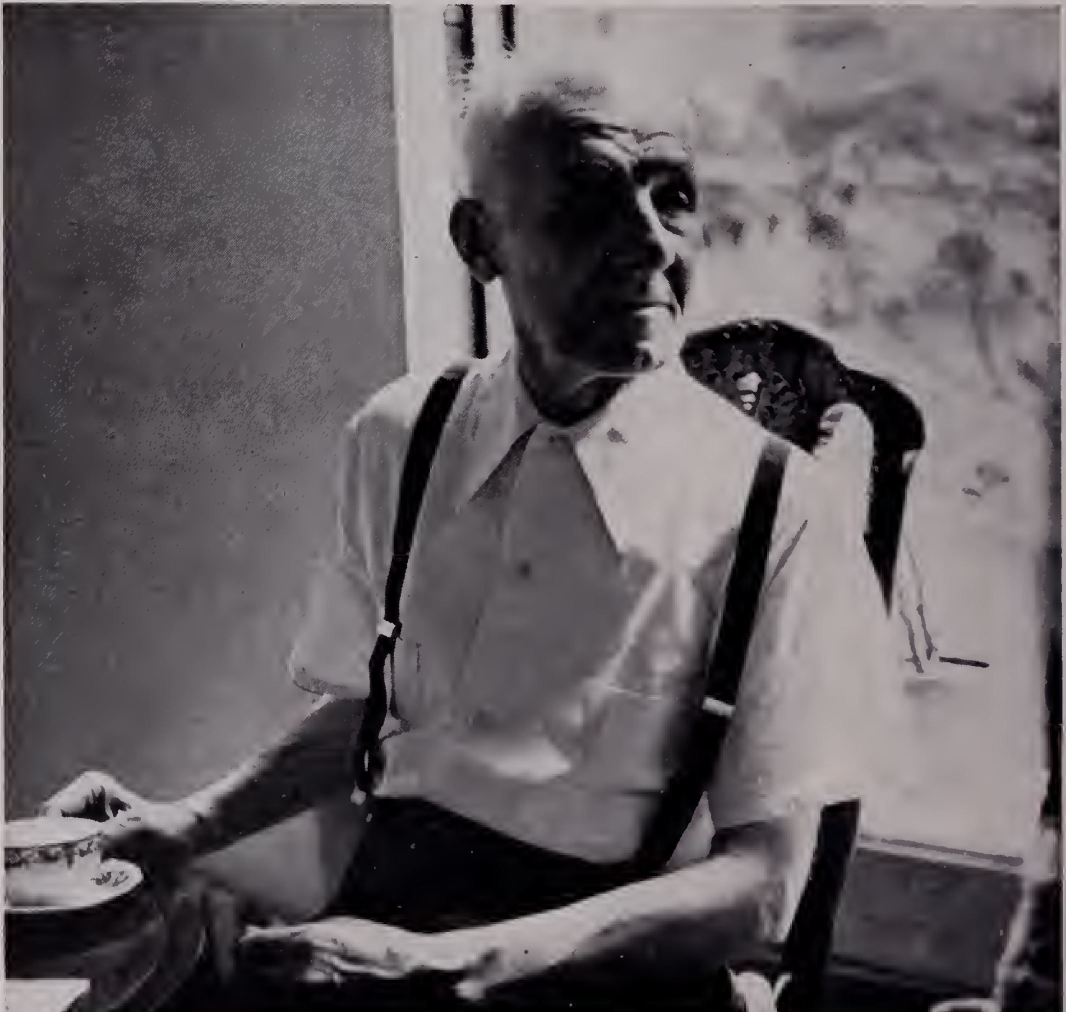

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*...from mild pain complicated by tension and restlessness.*

## 'EMPIRAL'®

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|---|---|
| Phenobarbital . . . . . . . . . . . . . . . . . | gr. ¼ |
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# New Chemotherapy

# ARALEN® in RHEUMATOID ARTHRITIS

*Extensive studies of rheumatoid arthritis and related collagen diseases—in this country and abroad—have shown the antimalarial Aralen phosphate to be highly effective and well tolerated in a large percentage of patients.*

## *Clinical Results with Aralen in Rheumatoid Arthritis*

| Author | No. of Cases | Major Improvement | Minor Improvement | No Effect |
|---|---|---|---|---|
| Haydu[1] | 28 | 22 | 5 | 1 |
| Rinehart[2] | 25 | 12 | 4 | 9 |
| Freedman[3] | 50 | 43 | 3 | 4 |
| Bagnall[4] | 108 | 77 | 12 | 19 |
| Bruckner[5] | 36 | 32 | 0 | 4 |
| Cohen and Calkins[6] | 22 | 17 | 3 | 2 |
| Scherbel et al.[7] | 25 | 9 | 8 | 8 |
| Total | 294 | 212 (72%) | 35 (12%) | 47 (16%) |

- Success dependent upon persistent treatment
- Often of benefit where other agents have failed
- Remissions on therapy well maintained
- Remission of 3 to 12 months possible even if treatment is interrupted
- Tachyphylaxis not evident

### *GENERAL EFFECTS:*

- Patient feels better
- Patient looks better
- Exercise tolerance increases
- Walking speed and hand grip improves

### *LABORATORY EFFECTS:*

- E. S. R. may fall slowly
- Hemoglobin level may gradually rise

### *ANALGESICS AND STEROIDS:*

- Requirements usually reduced or eliminated

### *JOINT EFFECTS:*

- Pain and tenderness relieved
- Mobility increases
- Swellings diminish or disappear
- Muscle strength improves
- Rheumatic nodules may disappear
- Even severe or advanced deformity may improve
- *Active* inflammatory process usuall subsides
- Joint effusion may diminish

### *DOSAGE:*

Aralen is cumulative in action and requires four to twelve weeks of administration before therapeutic effe become apparent.

Latest information indicates that an initial da dose of 250 mg. of Aralen phosphate is prefera to the higher doses sometimes recommended. However, if side effects appear, withdraw Aralen for several days until they subside. Reinstate treatment with 125 mg. daily and, if well tolerated, increase to 250 m The usual maintenance dose is 250 mg. daily.

# *New* Chemotherapy

**INDICATIONS:**

- Rheumatoid arthritis, acute or chronic —with or without adjunctive therapy.
- Spondylitis
- Arthritis associated with lupus erythematosus or psoriasis

**THEORY OF ACTION:**

Aralen appears to suppress or induce remission of rheumatoid inflammatory processes by inhibiting adenosinetriphosphatase.

**HOW SUPPLIED:**

***Aralen phosphate:*** 250 mg. tablets in bottles of 100 and 1000.
125 mg. tablets in bottles of 100.

## Tolerance:

Aralen is usually well tolerated. Toxic effects are usually mild and to date have been transitory in nature, disappearing completely either on continuance or cessation of therapy or on reduction in dosage.

Gastrointestinal disturbances (e.g. nausea, rarely vomiting, diarrhea, abdominal cramps, anorexia) are frequent manifestations of intolerance. Temporary blurring of vision (due to interference with accommodation) is also relatively frequent.

Pleomorphic skin eruptions (e.g. lichenoid, maculopapular, purpuric), although generally mild, may preclude the use of an optimum dosage schedule. If a skin reaction persists on a reduced dosage schedule, or recurs after reinstitution of treatment with gradually increasing doses, discontinue Aralen till the lesion again disappears and consider resuming treatment with Plaquenil® (brand of hydroxychloroquine).

Less frequently transitory vertigo, headache, lassitude, or neurological disturbances, such as nervousness, irritability, emotional change, and nightmares have been reported. Instances of unexplained slight gradual weight loss as the patient's general health and arthritic condition improved have been mentioned. Occasional instances of bleaching (depigmentation) of the hair have been described.

Although an occasional instance of leukopenia, with normal differential count, has been reported (WBC about 3000), it has not proved troublesome because it has always been reversible on discontinuance, or diminution of the dose. Even spontaneous reversal may occur while full dosage is maintained.

## Caution:

Aralen is known to concentrate in the liver and, although hepatic damage has never been reported, the drug should be used with caution in the presence of liver disease. In the presence of severe gastrointestinal, neurological, or blood disorders, the drug should be used with caution or not at all. If such disorders occur during the course of therapy, the drug should be discontinued. Concomitant use of gold or phenylbutazone with Aralen should be avoided because of the tendency of these agents to produce drug dermatitis.

## Clinical Comments:

Of fifty patients receiving Aralen therapy, "43 have become really well; that is, they have no stiffness, and any pain that occurs can reasonably be attributed to use of joints affected by secondary degenerative changes. They have no evidence of joint inflammation, but may have a raised erythrocyte sedimentation rate. They have little or no need for analgesics." *Freedman*[3]

"One hundred and twenty-five private patients have been carefully followed clinically and haematologically while receiving well over 200 patient-years of chloroquine [Aralen] therapy. The results are considered good in 70%, one-half of these cases being in remission. Improved work performance, sedimentation rate, and hemoglobin levels paralleled the major objective gain in this 70%. 90% of them remained on chloroquine [Aralen] therapy, half for more than two years. Classical peripheral rheumatoid arthritis, spondylitis, arthritis of juvenile onset, and rheumatoid disease with psoriasis, all appeared to respond about equally well.

"It is suggested that chloroquine comes closer to the ideal for long-term, safe, control of rheumatoid disease than any other agent now available." *Bagnall*[4]

"Out of the 36 rheumatoid arthritis cases we treated . . . favorable results were obtained in 32 cases. *Bruckner et al.*[5]

## References

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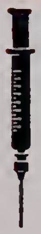

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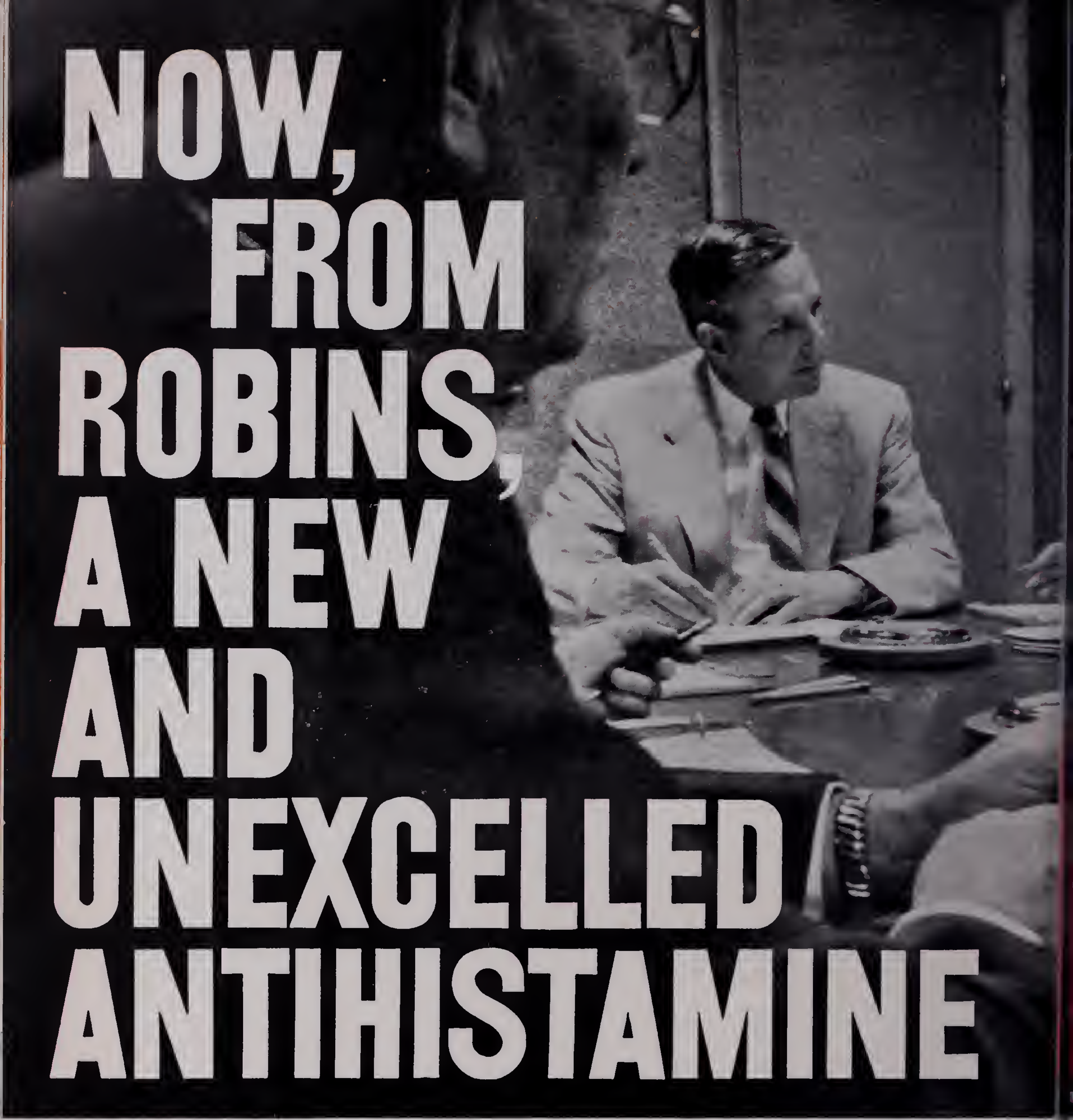

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|---|---|---|---|---|---|---|
| | | Excellent | Good | Fair | Negative | |
| Allergic rhinitis and vasomotor rhinitis | 30 | 14 | 9 | 5 | 2 | Slight Drowsines |
| Urticaria and angioneurotic edema | 3 | 1 | 1 | 1 | | Dizzy (1) |
| Allergic dermatitis | 2 | | 1 | 1 | | Slight Drowsines |
| Bronchial asthma | 1 | | 1 | | | |
| Pruritus | 1 | | 1 | | | |
| Total | 37 | 15 | 13 | 7 | 2 | Drowsiness (5) 1<br>Dizzy (1) |

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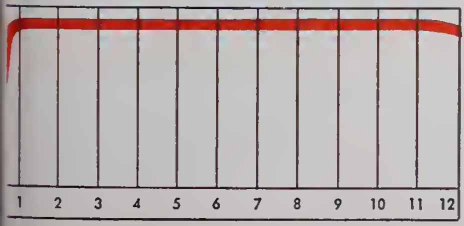

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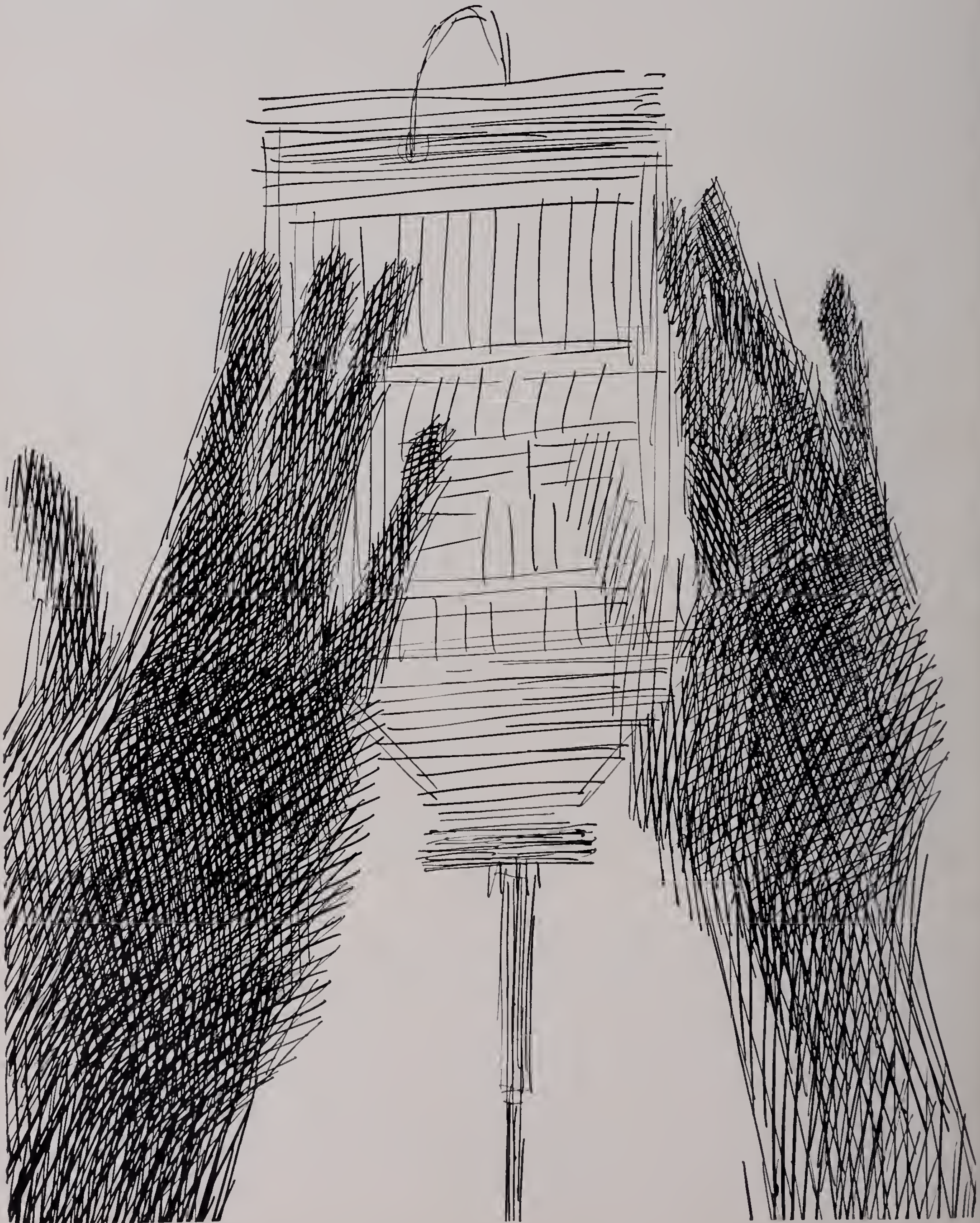

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References: (1) Gelvin, E. P.; McGavack, T. H., and Kenigsberg, S.: Am. J. Digest. Dis. 1:155, 1956. (2) Holt, J. O. S., Jr.: Dallas M. J. 42:497, 1956. (3) Natenshon, A. L.: Am. Pract. & Digest Treat. 7:1456, 1956. (4) Council on Pharmacy and Chemistry, New and Nonofficial Remedies: J.A.M.A. 163:356 (Feb. 2) 1957.

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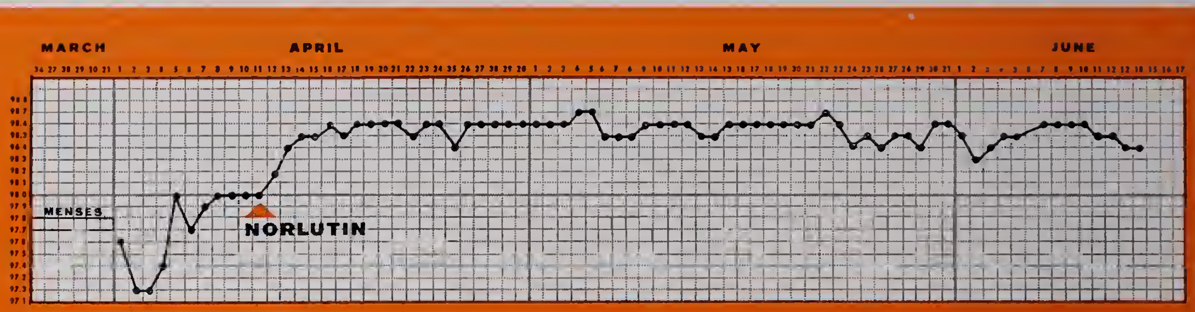

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*Greenblatt, R. B.: *J. Clin. Endocrinol.* 16:869, 1956.

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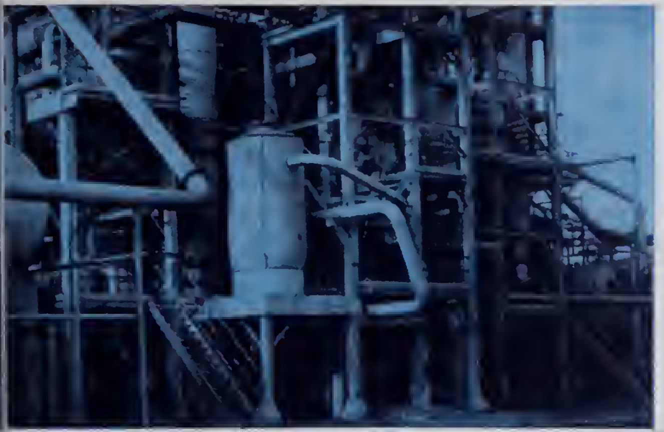

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*References*
1. King, J. H., Jr.; Passmore, J. W.; Skeehan, R. A., Jr., and Weimer, J. R.: Tr. Am. Acad. Ophth. 59:759, 1955.
2. Kuhn, H. S.: Tr. Am. Acad. Ophth. 55:431, 1951.

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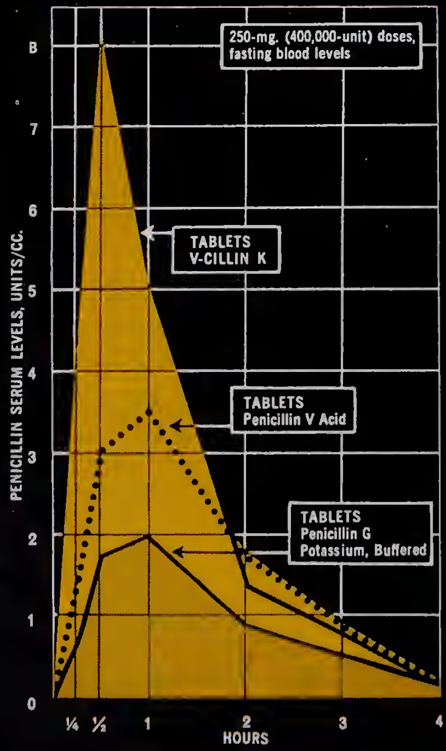

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VOLUME 29 DECEMBER, 1957 NUMBER 12

# TRAUMA IN RELATION TO CANCER

## DISCUSSION BASED ON A REPORT OF TWO CASES

O. J. Pollak, M.D.*

Joint meetings of branches of the American Medical Association and the American Bar Association, adoption of resolutions pledging cooperation between physicians and lawyers, and the creation of Medico-Legal Committees have revived interest in a multitude of topics. "Can Trauma Cause Cancer?" is one.

Though the bibliography is voluminous, no answer has yet been found to the question of whether or not trauma can be the cause of cancer. Discussion of pertinent cases may bring us closer to a solution.

### Case Reports

Case No. 1. A white man burned his lower lip with a fragment of hot steel while welding in 1929, at the age of 18 years. During the past few years the patient developed an area of keratosis in the same location as that of injury. In 1957, at the age of 46, an indurated area was found on the lower lip, 2 cm. from the left corner, covered by a 1.5 by 1 cm. crust, with induration of surrounding tissues. The lesion was completely excised.† On gross inspection, the material was wedge-shaped, 2.5 cm. in diameter, with the affected area 1 cm. in diameter. The microscopic picture was that of an ulcerous epidermoid carcinoma with extensive surrounding chronic inflammation.†† No enlargement of regional lymph nodes was noted.

Case No. 2. A Negro man injured his penis while lifting a steel beam in 1956, at the age of 46 years. Two or three days later he came to the accident ward.‡ A badly infected, but not indurated, deep and long cut was present below the glans penis, with only the lower aspect of the organ intact. The patient was seen again two and four days later. On each of his three visits the wound was redressed, treated locally, and he was given injections of antibiotics.

More than a year later the patient returned to the clinic stating that his penis was painful and that the wound had not healed. On examination, the organ looked much as it did on the original visit. The gap extended around two-thirds of the organ and was draining pus. The wound was cleansed and treated locally three times in three-day intervals. A granulomatous growth was found at the edges of the laceration; biopsy was advised and performed.‡‡ Microscopic diagnosis of an ulcerated epidermoid carcinoma and severe chronic inflammation was made and attention was drawn to scattering of melanin through the core of the new growth. Following this report, the penis was amputated and lymph nodes of the right groin were dissected.‡‡ On gross inspection of the organ the clinical description was substantiated. In the 9 by 7 by 3 cm. measuring fatty tissues from the groin, 14 indurated lymph nodes were found. Six measured 0.8 by 0.6 cm., four measured 1 cm. in diameter, and four measured 2.5 by 1.5 cm. The final microscopic diagnosis was: ulcerous epidermoid carcinoma, grade III, with severe chronic inflammation, scarring, and displacement of melanin; metastasis to all 14 right inguinal lymph nodes.

---

* Pathologist, Kent General Hospital, Dover; Milford Memorial Hospital, Milford; Beebe Hospital, Lewes, Delaware.

† Oliver A. James, M.D.

†† Milford Memorial Hospital

‡ Beebe Hospital

‡‡ James Beebe, Jr., M.D.

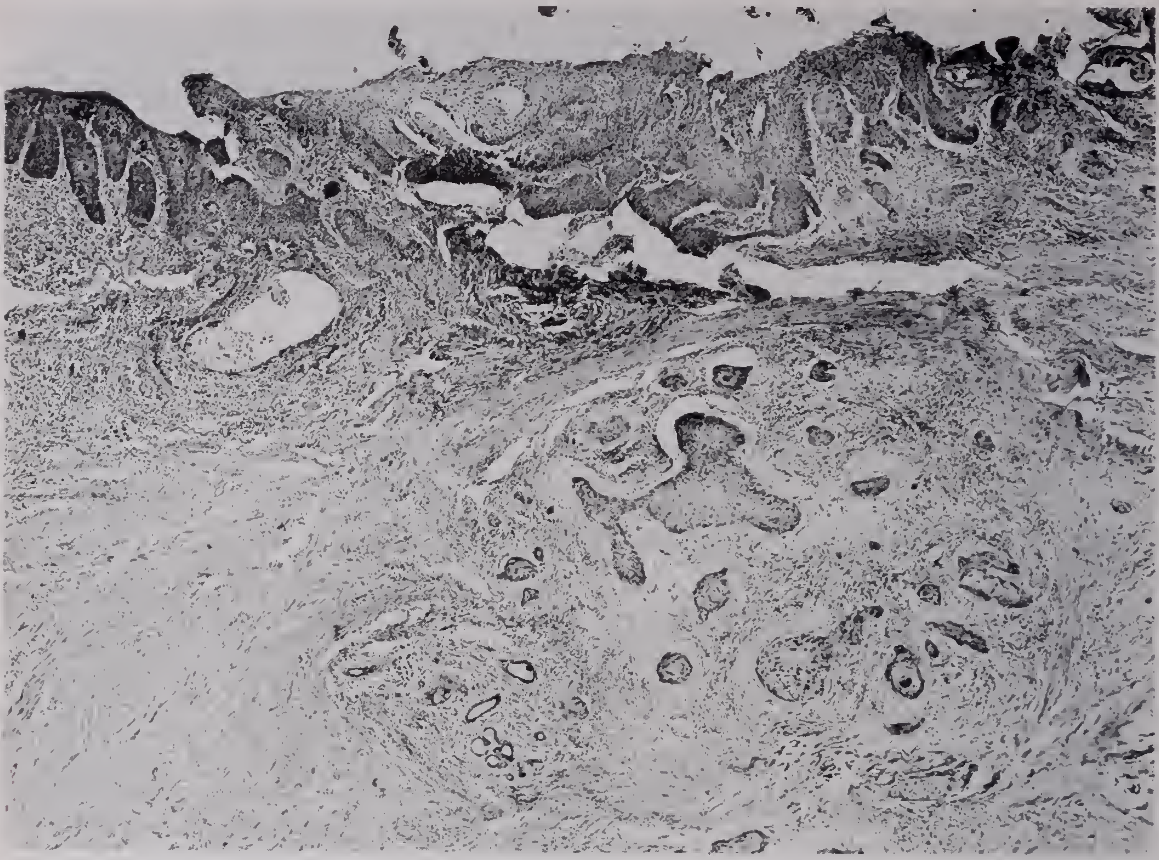

FIGURE 1
Photo micrograph — specimen from Case No. 1.

## DISCUSSION

Discussion of the topic must begin with definition of terms. "Cancer" indicates a malignant new growth and the criteria of malignant neoplasia are clearly described. Microscopic proof is essential for diagnosis and classification. "Trauma" is poorly defined since the term is used for physical, chemical, mental, acute, chronic, and intermittent injury. The role of recurrent and chronic injury in carcinogenesis is known.[1] For medico-legal purposes "trauma" is interpreted as a single brief mechanical injury causing disruption of tissue.

The connection between trauma and cancer could be manifold:

1. Trauma could cause the cancer.
2. It could determine localization of cancer, namely of metastasis.
3. It could initiate increase, extension, or spread of a dormant, microscopic or a small gross lesion.
4. It could bring about change of a benign into a malignant growth.

Answers depend upon questions. The query of cause and effect relationship will be answered usually with "no," sometimes with "may be," and rarely with "yes." Answers to the question about aggravation by injury will more often be "yes" or "may be" than "no". Localization of metastasis in an injured area is possible, traumatic transformation of a benign growth into a malignant one is improbable.

Five criteria[2] are accepted generally as proof of cause and effect relationship. A sixth postulate has not been accepted.[3]

1. Proof of integrity of the wounded part usually rests in lay rather than in medical testimony.
2. Similarly, proof of injury and its extent is based on testimony.
3. A time interval between trauma and appearance of a growth of at least a

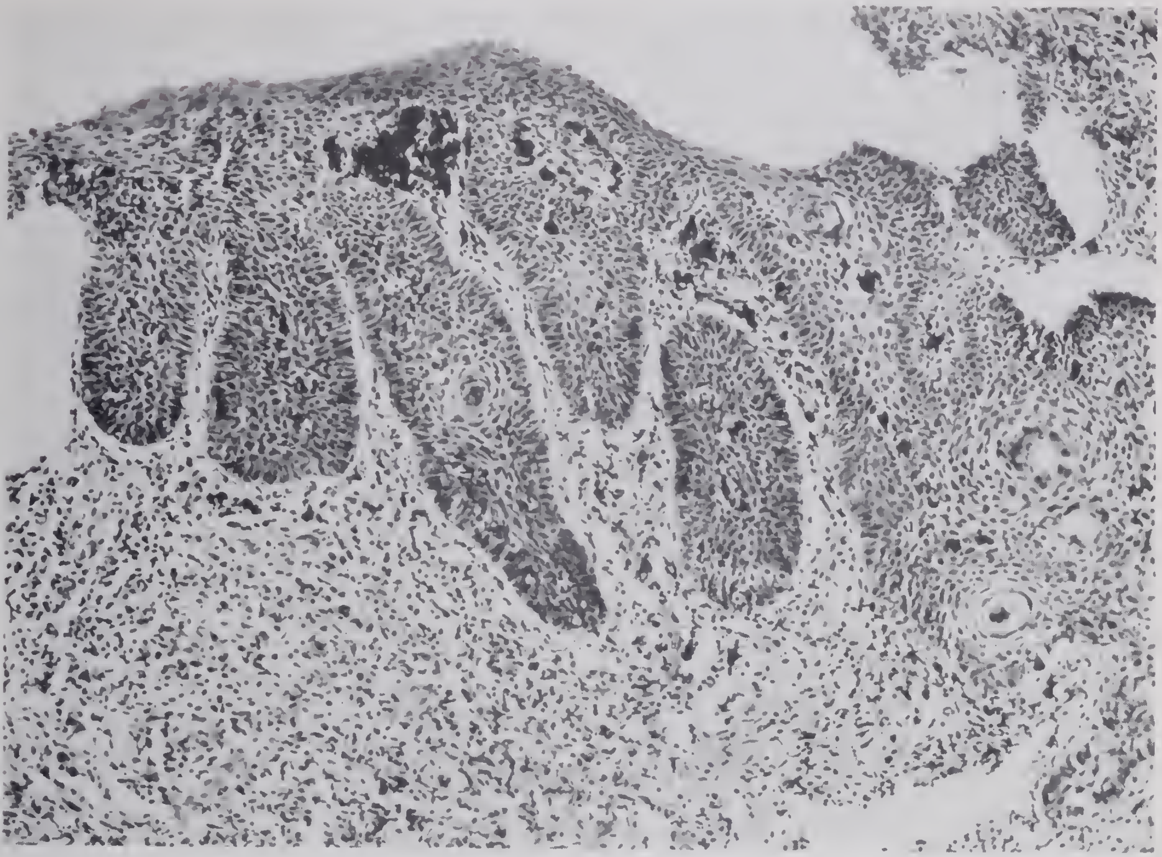

Figure 2
Photo micrograph — specimen from Case No. 2.

few weeks but more often of a year or longer is required.

4. Identity of the site of a primary neoplasm and of injury is another prerequisite.
5. The morphologic structure of the growth should reflect that of the injured tissue.
6. Bridging symptoms from the time of injury to appearance of the cancer should be present.

Let us analyze the two cases which seem to be examples of "traumatic cancer" since both injuries were unusual.

Case No. 1: Proof of injury rested solely on the patient's history. The degree of injury was small since it did not require medical care. The interval of 18 years from the time of injury to diagnosis seems long, even the time span to appearance of the lesion. Identity of the site of trauma and growth were claimed by the patient. The criterion of morphologic identity is the only one which was fulfilled. Keratosis with induration present for "a few years" prior to diagnosis cannot be held a bridging symptom since it is a common precursor of epidermoid carcinoma.

Case No. 2: Proof and degree of injury were based on medical examination shortly after the trauma occurred. The patient's bills were honored by an Insurance Company which investigated the accident. The interval between trauma and diagnosis of neoplasm was 15 months. There was no doubt about identity of site and morphologic architecture. Microscopic examination revealed ample evidence of previous injury, chronic inflammation, scarring, presence of extracellular skin pigment displaced by injury, and epidermoid carcinoma. The facts that the wound had never healed and that it was painful, are acceptable as bridging symptoms, though pain, if not poor healing, may have been due to infection rather than

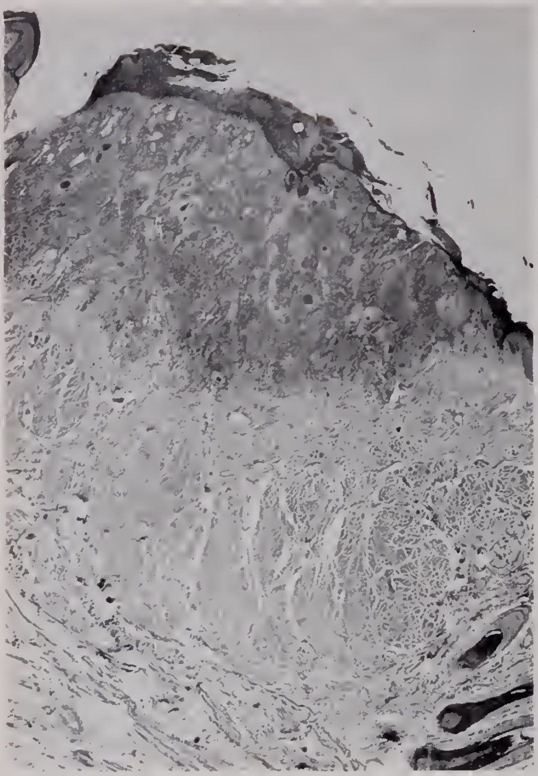

FIGURE 3
Photo micrograph — specimen from Case No. 2.

neoplasia. The extent of the new growth and involvement of numerous inguinal lymph nodes suggested duration of several months, a year, or longer. The criteria for connection between trauma and cancer seemed to be fulfilled.

The first case is an example of "negative correlation". Epidermoid carcinoma of the lip is common while the type of alleged injury is rare. One has to ascribe development of cancer at the site of trauma many years ago to coincidence.

The second case seems to be an example of positive correlation. Lack of evidence that the tissues were intact prior to trauma presents a serious limitation. A biopsy at the time of first examination would have provided evidence of presence or absence of neoplasm at the time of injury. There was no indication whatever for biopsy at that time. However, the possibility of a preexisting neoplasm cannot be excluded since the appearance of the wound was much the same 18 months after the accident as on first examination after injury. Thus, the question of cause and effect relationship remains open in this case as in most others and only the question of aggravation by the trauma deserves serious consideration.

## SUMMARY

1. The problem of "trauma and cancer" is discussed on the basis of two case reports.

2. Positive correlation was lacking in a case of epidermoid carcinoma of the lip diagnosed 18 years after the lip had been burned by hot steel.

3. Cause and effect relationship could not be positively established in a case of epidermoid carcinoma of the penis diagnosed 18 months after laceration of the organ by a steel beam. Aggravation of a preexisting neoplasm seemed likely.

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3. Warren, S.: Criteria required to prove causation of occupational or traumatic tumors, Univ. of Chicago Law Review, 10: 313, 1943.

# HEALTH SERVICES IN THE WILMINGTON PUBLIC SCHOOLS

Thomas W. Mulrooney*

In 1947 a new department was set up in the Wilmington Public Schools to include health services, guidance services and all the services offered to exceptional children.

The director named to administer these various services asked the officers of the Delaware State Medical Society, together with the executives of the City and State Boards of Health, to assist him in setting up an advisory committee in the field of school health. Such a committee was formed and has continued to serve during the past ten years, meeting once or twice each year, reviewing the school health policies and procedures and recommending revisions or new ones. This Medical Advisory Committee has been a major factor in the success of the health program in the Wilmington schools.

During the past year the present members of the Committee acted as consultants in the complete revision of our school health policies and assisted in carrying on an in-service program for the nurses and dental hygienists who work in the schools.

The members of the Medical Advisory Committee are:

Dr. Charles H. Benning
Dr. Davis G. Durham
Dr. Margaret I. Handy
Dr. Jack Sabloff
Dr. A. R. Shands, Jr.
Dr. Henry H. Stroud
Dr. C. E. Wagner
Dr. Robert O. Y. Warren
Dr. Victor D. Washburn
Mr. LeRoy Horne

The Department of Child Development and Guidance of the Wilmington schools employs four physicians (one full time woman physician and three men physicians who serve approximately ten hours each week). During the school year these physicians not only provide routine physical examinations to all pupils in grades 1, 3, 5, 7, 9 and 11 (a total of 6,419 last year) but also examine children in other grades for special reasons, at the request of the principals or nurses, and give a thorough examination to each of our approximately 1,000 school employees. The physicians were assisted in these examinations by the thirteen nurses who were employed full time last year.

Other significant items in the area of health services during the past year follow:

A total of 2561 children were given a booster injection or a third inoculation of polio vaccine if they had had two previous ones, and a total of 5245 children were administered the three injections throughout the year. These vaccinations were made possible by the assistance of teams of nurses from the State and City Boards of Health, with volunteer physicians offering their services.

The Mobile Unit of the State Board of Health examined 4252 children in junior and senior high schools and also all Board of Education employees (approximately 1,000) by x-ray.

The City Board of Health provided a booster inoculation against diphtheria, whooping cough and tetanus to 691 children. The usual series of three injections was not offered last year because of the polio vaccination program and the difficulties of scheduling.

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*Director, Department of Child Development and Guidance, Wilmington Public Schools

A total of 2794 children were also vaccinated against smallpox in the spring by the City Board of Health staff.

The Delaware Anti-Tuberculosis Society provided rechecks of x-rays for a number of our children and staff members whenever this was advised.

The Audiology Center at the Delaware Hospital, assisted by funds from the Crippled Children's Division of the State Board of Health, made possible follow-up examinations of all children suspected, as a result of our audiometric tests, of having a serious hearing problem. Our hearing conservation program enabled 77 children to be referred to the Center, of whom 72 were actually examined and in many cases treated. A total of 25 other children were treated by private otologists as the result of referrals by our hearing conservation program.

Two orthopedic clinics were conducted in the fall by Dr. Shands with one of his assistants — one at Highlands and one at P. S. duPont School. 66 children were seen in these clinics — several were followed up at Nemours Institute for treatment or operations, some were referred to family physicians and the parents and teachers of others were advised concerning corrective postural exercises.

The Wilmington Lions Club furnished 84 pairs of glasses to indigent children after they had been examined at the local hospital clinics.

The three dentists employed by the Department of Child Development and Guidance (for approximately ten hours each per week) treat only indigent children, making fillings where possible, extractions where necessary and being able to meet only a fraction of the great need in the area of dental services. During a recent meeting of the Medical Advisory Committee the problem of dental care was considered at length. In view of the fact that of the thousands of children who were examined by our dental hygienists and dentists last year, each of them averaged six cavities, the Committee expressed the hope that fluoridation of the water would soon be a reality in Wilmington. The Committee was also greatly interested in the report of the Director of the Department of Child Development and Guidance that the present officers of the Delaware State Dental Society are working on the problems of increased and improved dental services for children who are in need.

The Medical Advisory Committee suggested that a program of polio inoculations for children who have not as yet been immunized should be started in the schools at the earliest possible date.

The devoted services of the members of the Medical Advisory Committee to the Wilmington Public Schools and the willingness of each of those members to offer advice to the Director of health services on particular problems is responsible for the fact that the various health services offered to the children and the staff of the Wilmington schools are the equal of similar services, both in variety and quality, offered by any city of comparable size in the country.

# WOMAN'S AUXILIARY

The Woman's Auxiliary to the Medical Society of Delaware is now beginning its twenty-ninth year. The program established and the accomplishments over these years are most impressive. When, as the newly elected state president, I represented our state auxiliary at the recent fall planning conference in Chicago, it was a great deal of pride and pleasure. We do compare percentage wise very favorable with the larger states in all phases of the national program.

The national directive cites as the theme for 1957-58 "Health is a Joint Endeavor". By joining forces within our own medical circles and with our individual communities we can promote this theme into specific and realistic goals. We can increase our A.M.E.F. contribution, become better informed on legislative matters pertaining to the medical profession, assure a copy of "Today's Health" in public reading places to better enlighten the laymen on health matters, and arouse interest in and offer aid to the field of nursing.

All of us who attended the state convention in October were indeed impressed by the past president's report. In it Mrs. Thomas McGuire showed the scope of the Delaware Medical Auxiliary's contribution to both the state and national medical organizations. I earnestly request the members of the New Castle, Kent, and Sussex auxiliaries to continue these endeavors which are so essential to the well being of our state and nation.

The following members are the officers, chairmen, and directors of the Woman's Auxiliary to the Medical Society of Delaware for coming year: President, Mrs. Roger B. Thomas; President-elect, Mrs. Hewitt Smith; Vice-President, Mrs. John Howard; Recording Secretary, Mrs. Edward O'Donnell; Treasurer, Mrs. Harold Laggner; Corresponding Secretary, Mrs. Lewis Chipman; Directors two year term, Mrs. Sylvester Rennie and Mrs. Richard Comegys; Directors one year term, Mrs. Charles E. Wagner and Mrs. Laurence Fitchett; Recruitment, Mrs. George Eriksen; Today's Health, Mrs. Joseph Casella; Revisions, Mrs. Glenn VanValkenburg; Safety, Mrs. John Baker; A.M.E.F., Mrs. James Dukes; Archives, Mrs. Carleton Fooks; Bulletin, Mrs. Richard Hayden; Civil Defense, Mrs. Henry Stroud; Finance, Mrs. John Barnhart; Hospitality, Mrs. Harold Mercer; Legislation, Mrs. James Flanders; Mental Health, Mrs. George Garrison; Organization, Mrs. Hewitt Smith; Parliamentarian, Mrs. Haynes Cates; Program, Mrs. John Lazzari; Public Relations, Mrs. Walter Lee.

# REPORT OF PROCEEDINGS

# MEETING OF HOUSE OF DELEGATES

## MEDICAL SOCIETY OF DELAWARE

held at

ACADEMY OF MEDICINE

WILMINGTON, DELAWARE

on

SUNDAY, OCTOBER 20, 1957

# PROCEEDINGS OF HOUSE OF DELEGATES

(The meeting of the House of Delegates, held at Delaware Academy of Medicine, was called to order at 3 o'clock, P.M., October 20, 1957, Roger Murray, President, presiding.)

Chairman Murray: Will the delegates please be in order.

Will the Secretary call the roll.

(The roll call was then taken by the Secretary.)

Chairman Murray: We have a quorum, and I suggest we proceed. We can get a lot of committee reports out of the way while we are hoping for more men to arrive.

Will the Secretary read the minutes of the last session.

Secretary Cannon: The last session minutes of the Council were published in the State Journal, and I would like to move that they be approved as published.

Chairman Murray: Is there a second to that motion?

(The motion was seconded.)

Chairman Murray: All in favor say "aye".

(The motion was carried.)

Reports of Officers.

The President has no report. I will make my report to the Society as a whole next Friday evening.

Sam Stern, Vice-President, says he has no report.

Does the Secretary have a report?

Secretary Cannon: Well, very briefly the office of the Secretary has been conducted on a current basis during the year. Minutes of the Council have been recorded and filed, and no unusual problems have arisen.

Chairman Murray: Will the Executive Secretary please read his report.

## REPORT OF THE EXECUTIVE SECRETARY

The year terminating with this 168th Annual Meeting has been full and eventful for the Medical Society of Delaware. With regard to new programs and new projects, it has, in all probability, been unprecedented in the long history of the organization, not only in terms of sheer activity, but, importantly, in terms of results extending to the many areas of Medicine's legitimate interests.

The Annual Meeting itself reflects changes. Most obvious of these is the present separation of the meeting of the House of Delegates from the Scientific Assembly. This should reduce the pressure upon the Delegates that has sometimes obstructed previous meetings, and will remove the limitations imposed by concurrent scheduling. In this case, it has also eliminated the necessity for a morning meeting of the House, which would otherwise be required because of the expansion of the scientific program. Coincidentally, it has made it possible for the Society's limited staff better to perform the separate duties called for by the scientific session and this meeting.

Friday afternoon's session will be devoted entirely to discussions of taxes, investments, trusts, and similar problems which, while not scientific in the accepted sense, are inevitably a phase of the physician's operation of his practice, and which are not commonly a part of the specialty society's interest. If the acceptance of the program justifies it, the State Society will be able to explore this phase further.

The Technical Exhibit has presented a special problem this year. The Society has been faced since 1953 with a steady loss of exhibitors and of revenue. In the three year period 1953-1956, this has amounted to an approximate decrease of 60% in each category. It has therefore been necessary to so arrange and promote the meeting that new exhibitors would be attracted, and, once attending, be motivated to return.

To increase available space, self-supporting, double-faced panels have been designed and ordered which make possible the erection of twelve booths independently of existing walls. Further changes in the presentation of the meeting to potential exhibitors arose from a meeting of some of last year's exhibitors with the President and the Executive Secretary.

The results of these efforts have been encouraging. The revenue from Technical Exhibits this year exceeds that of any previous year. The number of booths occupied by new exhibitors or those returning after prolonged absence is equal to the entire total of exhibitors in either 1955 or 1956. The panel booths have returned in cash over 90% of their cost in the first year of use, and have also made possible the accommodations of 4 scientific exhibits, without which our total of eleven scientific displays would necessarily have been decreased. It is regrettable that applications for both technical and scientific displays had to be rejected for sheer lack of space, but, in another way, it is an encouraging sign of renewed interest in the exhibit.

Although certain gains have been made in the management of the Annual Exhibit, consolidation of them is beyond the control of the Executive Secretary. If the exhibit is well attended, it will continue profitable, both educationally and financially. If not, another, perhaps deeper slump is inevitable. We take this oppoprtunity to urge each member of the Society to make it his personal responsibility to see that the attendance is forthcoming. A deficit on the Annual Meeting is, most simply, a limitation upon the activities of your Society.

The most significant nation-wide development this year, from the standpoint of the Society, has been the implementation of the Medicare program, now in its eleventh month of operation, generally speaking, the program has been more successful, in Delaware at least, than was commonly expected. This has been due largely to the efficiency of the staff assigned by the Department of the Army to administer Medicare, who have been consistently cooperative and constructive in their apprpoach.

The groundwork for local implementation of the program was laid immediately after last year's approval by the House of Delegates. Committees in each county set fees considered normal in that county for persons of the income level of the average service family. A joint committee, headed by the Secretary, then compromised the three county schedules to create one schedule considered appropriate to the entire state. This was first approved by the Council, then taken to Washington by President Van Valkenburgh, Secretary Cannon, and the Executive Secretary for negotiation with representatives of the Department of Defense. This schedule, with increases and decreases acceptable to both parties, became the official Schedule of Allowances for the program.

As of October 15, or approximately ten months after the inception of Medicare, 1,450 claims had been processed, in the amount of $110,736.95. With this case load, the three special reports listed by the Committee on Medicare Adjudication are a remarkably low figure, and even more so when only one can be considered at all a dispute.

One change in the fee schedule as it originally stood has been negotiated, and one other is pending. Dissatisfaction, if any, with the schedule or with other phases of the project should be reported to the Society's office.

Recognition should go to Group Hospital Service for its excellent work as fiscal administrator for the Medicare Program. All of the work of paying claims and some of the educational material has been handled on a non-profit basis by Blue Shield. We are indebted for their efforts, and for the great amount of extra time devoted by their staff to making the program a success. Personnel from Blue Shield will attend a scientific exhibit provided by the Department of the Army, and will answer questions about this phase of Medicine.

The Veterans Administration has been informed of the disparity between its fees for outpatient care and those currently prevailing in Delaware. The VA has expressed its willingness to discuss this subject, and a new schedule is under preparation by the Committee on Military and Veterans Affairs. We are hopeful of implementing this upon expiration of the present contract, June 30, 1958.

The Society has been engaged this year in an extremely fruitful public relations project involving public inoculations against poliomyelitis. There have been administered with the cooperation of the State Board of Health and the Delaware Chapter of the National Foundation for Infantile Paralysis.

Most of the publicity for this program emanated from the Society's office, and all publicity issued by the Society stressed a choice of private physician or public clinic. Emphasis was chiefly upon educating the public about the facts of the Salk vaccine, with the assumption that public response would develop. Transcriptions of the voices of local physicians were made available, together with releases, to all radio and television stations, and pictures and stories to all newspapers. Members of this Society, as well as the Executive Secretary and representations of the NFIP, addressed various meetings of students and adults. Direct mail furnished by the Society was sent out by Group Hospital Service, and leaflets and posters distributed by the NFIP and the Woman's Auxiliary. Other media were used as the Society made a maximum publicity effort.

Newspaper, radio, and television cooperation was magnificent. It should be understood that without such cooperation the entire project would have been a dismal failure. As it was, the public responded as anticipated. Approximately 75,000 Delawareans received first and/or second shots through the clinics, and Board of Health statistics indicate that as many were vaccinated by their personal physicians. Demand reached such levels here, as elsewhere, that supply could not accommodate it, and the clinics had temporarily to be suspended. As one indication of success, however tenuous, it is known that as of October 4 no cases of paralytic poliomyelitis had developed in the state this year, as compared with 10 cases within the same period last year.

It is more difficult to assess the results in terms of public relations. The Society office received dozens of calls through the campaign expressing the appreciation of the public and/or requesting information about the Salk vaccine. Certainly, ten weeks of constant front-page, editorial, and news broadcast identification with a project universally acknowledged as beneficial to the public has done inestimable good, and clinics held within the state capitol while the legislature met on the floor above have been of benefit. Society releases giving full credit to the General Assembly for making available funds for the vaccine have been published and well received by the legislators.

This, as well as other influences, have had an apparent effect upon the results we have had in our legislative efforts. Medicine's influence in the General Assembly has been markedly low for several years, so much so that in 1955 one legislator publicly stated on the floor of the House that what physicians favored he would oppose. In 1956, on the advice of longtime observers of the legislative, the Society kept in close contact with the General Assembly, but did not actively support or oppose a single bill.

This year, beginning with the bill making possible the polio campaign, the Society has actively supported five bills, and actively opposed four. This is admittedly, and intentionally, the minimum consistent with the profession's interest. It is, however, interesting that relatively few such bills have been offered.

To date in this session, we have not suffered a defeat. Three of the five bills supported are now law. Two are awaiting final disposition. Three of the four opposed have not come to a vote in either House. The remaining bill passed the Senate nine days after its introduction, indicating advance preparation, but was successfully held in committee in the House. A substitute acceptable to the Society will be introduced in the 1958 session. The Society is particularly indebted to Representatives Clark, Livingston, and Manning and to Senator McCullough for their constructive interest in the welfare of the public.

The tempo of continuing activities of the Society has increased. Outstanding contributions are being made by the Committee on Medical Education with its initiation of periodic rotating seminars on advances in medicine and by the Committee on Medico-Legal Affairs with its continuing work to improve intraprofessional relations.

The Committee on Diabetes' detection campaign was carried out as in the past, with success, and an ad HOC Committee on Asian Influenza was appointed by the President to set and to make public the policies of this Society regarding the threatened epidemic of the disease.

The Placement Service continues to function. Results are not as encouraging as might be hoped, but some good is being accomplished. The Executive Secretary continues to manage the business of the Delaware State Medical Journal, under the direction of the Committee on Publications, and to address lay groups on behalf of the Society under the direction of the Committee on Public Relations. The major topics of these discussions this year have been the Medicare and polio inoculation programs, and an explanation before the Annual Convention of the Seaboard Collectors Association of the special problems involved in presenting professional accounts. We have also represented the Society at meetings in Philadelphia, Chicago, Atlanta, and New York.

I should like to conclude by expressing my personal appreciation to each of the County Medical Societies for their hospitality when I have visited them, and to the officers and members of this organization for their consideration and support throughout the year.

Respectfully submitted,
LAWRENCE C. MORRIS, JR.
*Executive Secretary*

CHAIRMAN MURRAY: Are there any comments or discussion?

DR. G. J. BOINES: Did I understand you to say that there were no cases of paralytic polio so far?

MR. MORRIS: As of October 4.

DR. BOINES: There was one that came in on October 3, polio paralytic, bulbar and respiratory.

EXECUTIVE SECRETARY MORRIS: I am very sorry to be in error. I was picking up my information from the morbidity list.

So that would be one so far this year as compared with ten at this point last year, is that correct?

DR. BOINES: Yes.

CHAIRMAN MURRAY: Any further comments?

(There was no response.)

CHAIRMAN MURRAY: If not, the report of the Executive Secretary will be filed.

The report of the Treasurer, Dr. Levy, will be deferred. He is unable to be here until 4 o'clock. So we will move on to reports of standing committees.

First, the Committee on Medical Education, Dr. Lewis Flinn.

## REPORT OF COMMITTEE ON MEDICAL EDUCATION

House of Delegates:

The Committee through this past year has endeavored to stimulate postgraduate education and also an increased interchange of medical ideas throughout the state. In May, it conducted the first symposium on advances in the field of medical practice. We were fortunate in securing the services of two particularly able lecturers, Dr. Perry MacNeal and Dr. George Fisher of the Pennsylvania Hospital in Philadelphia, for a symposium on adrenal steroids held at the Milford Emergency Hospital. Judging from the enthusiasm at this meeting, and from the large number of questionnaires later returned, the information presented was generally useful and confirmed the committee's belief that post-graduate education on a local basis is desired by the physicians of Delaware and will prove most profitable. The next meeting is scheduled to take place in Dover on November 21; to be given by the section on post-graduate education of the Department of Medicine of the Johns Hopkins University School of Medicine. The following program is scheduled:

FACTORS IN THE MANAGEMENT OF INFECTIONS

A) Viral Infections — Dr. R. Wagner
Associate Professor of Medicine

B) Staphylococcal Infections — Dr. L. E. Cluff
Associate Professor of Medicine

C) Salmonella Infections — Dr. E. W. Hook
Assistant Professor of Medicine

D) Round Table Discussion and Question Period.

It is planned to hold further meetings perhaps next time in New Castle, and then again in Sussex. It was disappointing that more New Castle County members did not attend the meeting in Sussex. One reason, perhaps, for this low attendance was an unavoidable conflict with another meeting at the time in New Castle County.

To supplement the available opportunities for study without leaving one's practice, the Committee has discussed with another institution the possibility of providing audio-visual study kits for those who want them. These will be so designed that preliminary study can be carried on on an individual or small, congenial group basis, preparatory to advanced discussions with experts on the topic. We have reason to believe that financial support for such a project will be available through an interested Foundation, provided that our pilot project indicates a worthwhile reception of the program. The Committee on the Budget has recommended that we receive funds to finance the pilot project, which will involve creating kits, and we are awaiting the approval of the appropriation by the House of Delegates.

In pursuit of last year's Committee recommendation that the Public Health Forums sponsored so successfully in Wilmington by the Academy of Medicine, Group Hospital Service, the News-Journal Co., and the Welfare Council, be expanded into other parts of the State, the idea was presented indirectly to several prominent lay people in southern Delaware. No response was elicited. It seems probable that interested physicians in other communities who want programs of this type will have to take the lead in aligning local sponsorship. This Committee remains ready to help when and if it is asked.

The monthly bulletin of meetings for distribution to physicians, has not been successful. Following last year's instructions, the executive secretary began monthly telephone calls to each of the hospitals in Delaware. The reception by the hospitals ranged from sporadically cooperative to frankly reluctant. In one instance the Society's office was told that the hospital did not encourage outside attendance of its meetings. The picture was further complicated by the ruling of the Commission on Accreditation which limits advance planning of the topics of department meetings. The Committee has, consequently, undertaken to produce a monthly schedule of major meetings, without regard to hospital conferences, which will, we trust, meet greater success.

Lewis B. Flinn, M. D., *Chairman*
G. B. Heckler, M. D.
L. L. Fitchett, M. D.

Chairman Murray: What is your pleasure regarding the report of the Medical Education Committee? As I listen I don't think there are any recommendations in there that have to be approved by the Society except the recommendation that the funds be appropriated to them in the approval of the budget, which will be considered later. We will automatically approve that allocation of money to the Medical Education Committee.

Is there any discussion of this report?

(There was no response.)

Chairman Murray: If not, it will be filed.

The Committee on Public Laws, Dr. Fox.

Secretary Cannon: This Committee report includes the list of bills that were passed or acted on in the last Legislature, and I think, with Dr. Fox' approval, we are going to omit the reading of that part of it, although that will be published in the State Journal.

To President Roger W. Murray, M. D.
From Public Laws Committee

Subject: Annual Report of Public Laws Committee of the Medical Society of the State of Delaware

Drs. W. O. LaMotte, Jr., D. J. Preston, J. S. McDaniel, Sr., James Beebe, Jr., and J. Robert Fox comprised the public laws committee for 1956-57.

The following Bills of interest to the medical doctors of Delaware were brought before the last State Legislative Session.

S.B. # 92—Abolishing the office of Coroner.
Disposition: Remained in committee.

H.B. # 91—Changing composition of the Board of Health by adding a hospital administrator and a farmer.
Disposition: Passed the House. Sent to the Senate.

H.B. #100—Providing that food handling requirements in the schools be not less stringent than those in public eating places.
Disposition: Passed and approved by Governor.

H.B. #120—Increasing the salary of the New Castle County Coroner from $3600 to $4200.
Disposition: Remains in committee.

H.B. #127—Appropriating $120,000 for Mental Health Training Research.
Disposition: Passed and approved by Governor.

H.B. #150 &
H.B. #151—Permitting the Family Court of New Castle County and the Juvenile Court of Kent & Sussex Counties respectively to commit minors to the Bacon Health Center, on approval of the Mental Health Clinic.
Disposition: Remains in committee.

H.B. # 47—Providing for the administration of the Salk vaccine to adults by the Board of Health.
Disposition: Passed and approved by Governor.

H.B. # 50—Providing that workmen's compensation be extended in the maximum benefit bracket to Civil Defense workers while engaged in the work.
Disposition: Withdrawn.

H.B. # 54—Creating an Air Pollution Authority and empowering it to control dispersion of matter into the air that creates a "public nuisance".
Disposition: Passed and approved by Governor.

H.B. # 64—Creating a Department of Labor, and placing the Industrial Accident Board under it.
Disposition: No action.

S.B. #274—Providing Injunctive relief in the Court of Chancery against violation of the provisions of Optometry Code.
Disposition: Passed Senate, now in House committee.

At a meeting of the Public Laws Committee on July 11, 1957, agreement was reached on a program of legislation for introduction in the January Session. This consists of five basic ideas.

H.S. 1—To extend the privilege of the Court of Chancery to all licensed professions or trades. This bill would be all encompassing in contrast to S.B. #274 that dealt only with Optometry.

Opticians Licensing Act: Establishing opticians as a licensed trade would end the present attempt of optometry to restrict the opticians scope of work, particularly with reference to Contact Lenses.

Protection for Office Technicians: Phrasing a bill which would afford relief against injunction for nurses and technicians working in a Doctor's office and under his supervision but not necessarily in his immediate presence.

Amendment to Medical Practice Act: Phrasing a bill which would restore the right of a medical doctor to practice any field of medicine without the need of exemptions to the various paramedical licensing codes.

Basic Science Law: This low would become effective some time in the future '58 or '59. It would not apply to anyone now licensed in Delaware. It would include physicians, osteopaths, dentists, chiropractors, and chiropodists on the ground that they are licensed to do surgery and/or prescribe for the whole human body. It would exclude nurses, pharmacists, Christian Science Practitioners, optometrists, etc., on the basis that their training qualifies them to administer to only a small portion of the body.

The cooperation of the committee members and particularly Mr. Lawrence C. Morris is acknowledged with appreciation.

Very truly yours,
J. Robert Fox, M. D.

Chairman Murray: This report has a definite recommendation for legislation which would require approval by the House of Delegates for the Public Laws Committee to proceed with them.

Dr. Fox: I wonder if you would come forward and read those one by one and we will present each one to the Society as you read it. You might briefly give the reasons for each one of those.

Dr. J. R. Fox: I think the importance of this program is really to lay out some suggestions rather than any specific recommendations. These bills are just broad ideas that should be narrowed down and made more specific when the bill is written up and when some agreement on this particular topic is reached.

No. 1: The bill that the Medical Society opposed was the use of the Court of Chancery to be extended specifically to optometrists and I think chiropodists. Our idea was to broaden that bill to make it all-encompassing, and such a bill has already been written and will be introduced in the January session, and it has been accepted by some of the legislators as a better approach than the previous bill which was disregarded, or at least kept in committee during this last session.

This HR-1 is the number given to the bill to extend the privilege of the Court of Chancery to all licensed professions or trades. This bill would be all-encompassing in contrast to SB-274 which dealt only with optometry.

This gives the opportunity for any particular group to go to the Court of Chancery and establish an injunction for restraint of encroachment on their particular field of practice. And I believe by giving the opticians an opportunity to use the Court of Chancery the same as optometrists would, it makes the whole thing a lot easier to control as far as restricting each other. Apparently the opticians have been subjected to a considerable amount of threatened court action in their efforts to dispense contact lenses. They have already been in the court last year, and there will probably be further litigation in that particular phase of the optician's work. And I think this bill will help defend the optician.

A second suggestion is an opticians' licensing act.

Does anyone have any suggestions or wish to elaborate on this discussion any for this Court of Chancery bill? Please interrupt me if anybody has any suggestions. I would be delighted to hear some.

An opticians' licensing act establishing the opticians as a licensed trade would end the present attempt of optometry to restrict the optician's scope of work, particularly with reference to contact lenses. This bill deals somewhat with the same problem as the first bill.

Opticians, as you know, are the right arm of an ophthalmologist in prescribing or at least in carrying out his prescriptions, whether it is for spectacle glasses or contact lenses or sometimes even for artificial eyes. Without the opticians every ophthalmologist in the State of Delaware would be virtually out of business because his prescription would have no outlet for being fulfilled as far as mechanical creation of the prescription and the fitting of this prescription to the patient.

So consequently it is in the best interests of the medical profession to have this technical supplement to their medical efforts. And opticians in this State have never been licensed. Their work has never been defined. Consequently they are really operating without any clearly defined permission in the eyes of the law. And by creating an opticians' licensing act and specifically defining what they may and may not do, it puts them in a much more solid position in the event that a group such as optometry wishes to restrict them from carrying out a prescription from a medical doctor who is doing eye work.

This contest that has come up over contact lenses, perhaps you are all familiar with it, when an ophthalmologist writes a prescription for contact lenses, he usually sends the patient to the optician, who adjusts the lenses to the patient's eye and does various mechanical manipulations in securing a good fit. The actual strength of the lens and the curvature of the lens is written for by the ophthalmologist, but the optician actually places the lens on the patient's eye. And this placing of the lens on the patient's eye is included by optometrists as their exclusive field. They would like to by law remove the optician from that phase of the work. I think that is a particularly detrimental situation because it would eliminate any patient who wishes to go to an eye doctor or an eye physician for contact lenses from doing so since the ophthalmologist would write a prescription which in turn would have to be filled only by an optometrist, and I believe by passing an opticians' licensing act we could define what an optician is permitted to do, and in the eyes of the law he would be able to carry out the ophthalmologist's prescription without interference.

That is a very brief discussion of this problem. Does anyone have any questions? If so, I could try to answer them.

(There was no response.)

Protection for office technicians, phrasing a bill which would afford relief against injunction for nurses and technicians working in a physician's office and under his supervision, but not necessarily in his immediate presence. That particular bill would influence anyone who has a secretary or an office nurse working in his office who takes blood pressures, checks a patient's weight, checks possibly their vision, or any other manipulation in the office that he, the physician, does not specifically do himself. Some of these paramedical groups can question the authority of a physician to delegate this work under the present lack of such a law, defining what an office technician might do legally and putting it into a code would permit the doctor to delegate such work under his supervision without him actually being in the room.

A specific example of how this bill would improve the physician's situation again comes back to this problem of the contact lens contest that has already been in the courts. The optometrists are maintaining that if an office nurse takes a vision test in an office, she is practicing optometry according to their definition of optometry. I think you all can realize that in an office where the practice is busy enough to delegate help, it is important to have the legal position clearly defined so that if your patient is in the hands of your nurse having a vision checked or if an orthoptic technician is giving any exercises, you, the physician who are responsible for delegating this work will not be in the eyes of the law doing an illegal act. I think the only way that can be prevented in the future is to define specifically the legality of delegation of such work.

Does anybody have any questions on that?

DR. J. W. HOWARD: Does this bill have specifications as to exclusion or inclusion of hospital employees?

DR. FOX: It certainly would include hospital employees. Orthoptic technicians, who are actually an independent group and who are taking patients from an ophthalmologist on a prescription basis and a suggestion for treatment really do not always work in ophthalmologist's office, and they would be under the same protection of such a bill.

DR. HOWARD: Will this bill broaden its scope into other lines such as you suggested? You have been talking about the technicians concerned with ophthalmology.

DR. FOX: Well, it really includes anyone who does a manipulation for a patient that can be misconstrued. In our present situation anybody who takes a blood count, for instance, is probably practicing medicine illegally, and it has really never been clearly defined and the only thing that brought it to our attention was this encroachment of the optometry group into the contact lens thing, and they in turn pointed out this problem about orthoptic technicians, and in its broadest sense it can go into any of the technicians who help physicians do their work.

DR. HOWARD: The problem that I would see is if the bill was not very carefully screened with all groups concerned, the bill could be very restrictive in its final analysis and could do more harm than good.

DR. FOX: I agree with you, sir.

MR. MORRIS: Would you mind if I said something?

DR. FOX: Go right ahead.

MR. MORRIS: This bill has been written in draft form, has not been finished yet and certainly has not been shown to anyone yet, but what it will say in effect is that a physician being legally responsible for the acts that he delegates to other people will have the legal prerogative of determining the qualifications of the people to whom he delegates that responsibility, backing it up with his own legal liability.

The problem here is rather a broad one, and it concerns optometry because optometry has been aggressive about it whereas other groups have not, to any great extent.

But there are many paramedical professions, trades, what have you, springing up that deal with specific segments of the body and are not practicing medicine as such in their own minds, because they are separating one section of the body, or not even the body—psychologists are an example, or chiropodists, and as these particular groups become rather well educated in their limited spheres, they tend to resent competition; they tend also to want to expound what they can do, and because this is so they try to get legislation. I am speaking specifically of optometry because they are the ones who are now doing it, although the danger does exist with other groups. The first step is to separate the technician from the doctor.

Now, in ophthalmology the implication is obvious. If he can't get lenses ground to his prescription by an optician, he can't sit down and grind the lens himself, it is prohibited, and consequently all refraction goes to the optometrist who is licensed legally to grind a lens.

DR. V. D. WASHBURN: The lenses do not go to the optometrist; they go to the optician.

MR. MORRIS: No, sir, the optician won't get them because the optometrist grinds them himself, whereas the opthalmologist can't do it simply because it is not economically feasible to do it.

DR. WASHBURN: The optometrist is quarreling because the optician is getting the work, isn't that it?

MR. MORRIS: The problem is this: Most ophthalmologists refer to opticians for mechanical operation of glasses. Most optometrists do not. If it becomes unfeasible for an ophthalmologist to write a prescription for a lens, then by default all of the refraction becomes the field of optometry. The optician is out of business, and the ophthalmologist is restricted for practical reasons strictly to surgery.

Now, having separated the technicians from the doctor involved, whatever his field may be, it could just as well apply to psychiatry or to any of several specialties, and the paramedical group is able to bring to its own door all of the available work in that particular specialty simply because the pressure of other business doesn't allow the doctor himself to do it. And if it is demonstrated in the Legislature here that the optometrist can do it, I think we can expect pressure from other groups to do the same thing, which is why it becomes important to stop it now, and which is why these particular bills are in terms of eye work, although they apply to other fields, too.

But this law under which we operate the law of precedent, and we are trying to set our precedent first, that is the status of the bill at the present.

DR. FOX: Another suggestion is an amendment to the Medical Practice Act phrasing a bill which would restore the right of a medical doctor to practice any field of medicine without the need of exemptions to the various paramedical licensing codes. Here again several situations have indicated that although medicine was here first and probably was licensed first, when other groups came in and defined their particular phase of work which paralleled medicine or even encroached on organized medicine, they very clearly indicated that they had the prerogative to do this particular work, and they were giving physicians the opportunity to do it by examination.

An example of that again goes back to optometry. Optometry gives the physician who practices eye work the opportunity to refract the eye with lenses as an exemption to the optometry code, and it gets a little ridiculous because actually we all know the physicians were refracting eyes long before optometry was organized. But they were clever enough and wise enough when they wrote their optometry code in the State Laws of Delaware to insert the exemption, and now all physicians practice the refraction phase of ophthalmology as an exemption to the optometry code. And I feel that can be corrected by an amendment to the present Medical Practice Act.

This last idea on basic science law is something new for the State of Delaware, but it is certainly worth considering. Many states already have this law. The idea is to make it effective sometime in the future and not make it apply to anyone now licensed in the State of Delaware, thereby eliminating a great storm of protest, but it would include physicians, osteopaths, chiropractors, chiropodists, and dentists on the ground that they do administer and have the background and training to administer to a body as a whole—at least they have had some background in pharmacology and therapeutics, whereas it would exclude certain groups such as nurses, pharmacists, science practitioners, optometrists, and all the others, on the basis that they really have not had background in pharmacology and therapeutics, or their field is very narrow and they administer only to a very small portion of the body.

The advantage of a basic science law is probably obvious to all of you. It gives the licensing group in our State an opportunity to screen those who are coming into the State on the basis of a license established elsewhere, which we are somewhat limited in doing now.

Secondly, it defines more strongly just what groups in the State are practicing medicine and what groups are not, and particularly in the realm of optometry we were faced with a bill two years ago which permitted optometrists to instill drugs into the eye and to give emergency treatment to the eye. Obviously they are not trained for either of those phases of work, but it was very difficult to explain to the legislators who had to evaluate this bill how an optometrist's background did not fit him for that particular type of treatment, whereas with the basic science law established and defining who would be required to take a basic science law, it would be very easy to indicate in a particular background whether their background included basic sciences or whether it did not.

Do you have anything you could add to it, Mr. Morris? Mr. Morris has been extremely active in this particular work and is very well versed in these particular suggestions.

Mr. Morris: Basic science law particularly has a good many applications that could very well be used and that are not covered under the present code. The most immediate example we have had has been this chiropractic road show that came through Wilmington a couple of months ago, with some of the most preposterous recommendations. They had an audience of about 30 people, and on the side they sold aluminum pots and pans, and we tried very hard to close that thing down and could not do it. We talked to the Attorney General, we talked to our own attorney, and they were legal. They were certainly incorrect, and they certainly were doing no one any good except themselves, but they were legal.

Now, with a basic science law you don't have that situation. You cannot practice chiropractic, you cannot practice osteopathy in any one of several fields including medicine in Delaware unless you have a basic science license. Not only does it give you some control over the minimum knowledge, the minimum qualifications of anyone who applies for a license in each of several fields which are recognized as having some therapeutic value, some more than others; you have minimum qualifications, and you can enforce them.

Furthermore, you can keep out of the State medicine shows, and what have you, that come through. It is a very valuable thing.

Now, in practical use anyone with a medical education, anyone with a good osteopathic education, can pass this test. So it is not restrictive in that it keeps out well-qualified people. But it does set minimum qualifications that are beyond the control of any given group.

Now, the law as it reads in many states, and would probably have to read in this one to get through the Legislature, would include a provision that no licensed profession would have a preponderance of members on this Board. Since the Board is basic science, which is basically described as physics, chemistry, biology, and so forth, that is very easily taken care of. For example, the head of the Chemistry Department at the University of Delaware, who is not licensed to practice medicine, is highly qualified in chemistry and would be a logical man to handle that branch of the science involved. That is the thinking behind the thing, and while it doesn't give the medical profession as such any control over licensing, it does establish minimum qualifications before you can get a license in any of several fields. And in that respect it can be a very valuable thing.

Dr. J. T. Metzger: Mr. Morris, as a personal holder of basic science certificates Michigan and Minnesota, I would like to add that this is very much a double-edged sword, and also having a good deal of experience in a family way with medical licensing in Pennsylvania, I feel that perhaps we should better define the Medical Practice Act rather than to institute a basic science law, which I think would be a very poor thing for our State. It is already difficult enough for a physician to become licensed in this State, and this is just another stone in his path. I think if we rather rewrote the present laws, we could accomplish the same thing without an additional act.

Mr. Morris: Dr. Metzger, the problem is this: I don't think anyone seriously questions that the present Board of Medical Examiners makes it necessary to know medicine rather well to get a license in Delaware. However, they have influence over other doctors of medicine, and a basic science law has influence over other professions, too, other healing arts. So any amendment to the Medical Practice Act would only affect doctors of medicine.

Dr. Metzger: But there must be some definition of what the practice of medicine is in the Medical Practice Act, and therefore it would be enforceable just like any automobile code or anything else.

Mr. Morris: But optometrists, for example, are not subject to the Medical Practice Act; neither are chiropractors; neither are chiropodists.

Dr. Metzger: It is not that I disagree with what you are trying to do, but I think the basic science law is a poor way of doing it because it adds an impediment to a qualified physician to practice in this State, and this I know from personal experience with Minnesota and Michigan.

You say anybody can pass an examination. That is probably true, but you have to go and take it and pay an additional tax to have such a certificate before you can actually do it. And I should think our laws, if they will not cover these situations, are not properly written.

This came up very strongly in Philadelphia about fifteen years ago in an effort to close up a marginal practitioner, and if you will review their experience in Pennsylvania on this same point, you will find that they had to strengthen their Medical Practice Act in order to do it, which is a much more sensible way to do it than to write a basic science law which is basically impedimentary to a well-trained man.

Mr. Morris: This is off the record, please.

(Discussion off the record.)

Mr. Morris: You may want to move that this be referred back to the committee for a different approach, and that might be a smart thing to do, but the committee has not developed a better one yet.

Chairman Murray: As I understand this, gentlemen, your approval of the report of the Public Laws Committee does not necessarily approve the endorsement of any specific law. The laws have not been drawn yet. It simply would give the Public Laws Committee and the Council and the State Society's attorney the go-ahead signal to investigate and develop these things.

I for one would never think of sanctioning the introduction of any bill into the Legislature sponsored by the Medical Society unless every member of the Medical Society knew about it and had an opportunity to read the bill and discuss it further when the exact provisions of the bill were drawn.

Chairman Murray: Thank you very much for the comments.

What is your pleasure regarding the report of the Public Laws Committee?

(A motion was made, seconded, and carried accepting and approving the report of the Public Laws Committee.)

Chairman Murray: I see Dr. Levy is here. Would you like to give the Treasurer's report now, Dr. Levy?

Dr. Charles Levy: The Treasurer's report is in two parts. One is the audit for the year ending December 31, 1956, from Hagerty and Hagerty. The members of the Budget Committee all have a copy of this. Those of you who want to look at it may.

The summary is as follows:

The realized income last year was $17,675.

The expenditures included salaries, operations, office, travel, and the expenditures at the annual session, amounted to $14,857.

That leaves a balance of $9,154.

Now, we certainly have some bonds and stocks. I don't think it necessary to go into that.

There was nothing purchased during the year. We have some Savings Bonds. We have Continental and du Pont, and so on, stocks, which are in a safe deposit box at the Equitable Security Trust Company. The income from these stocks and bonds amounted to $601.

Now, I have passed about on the chairs the statement from Hagerty and Hagerty in regard to the eight-month standing of the Society. The books were closed as of August 31. Let me state that the largest single expenditure is during the annual meeting, and this annual meeting, of course, will run into several thousand dollars. But we have receipts up until August 31, $27,275 in dues, but with the exhibits, that is, last year's exhibits and dividends on the investments and other income amounted to $29,789.44.

The disbursements, which includes salaries, A.M.A., that is, subscriptions to the State Journal, the office, electricity—we purchased an IBM machine last year, that is, this year, which cost $477; we also purchased an air conditioner for the office, $224.90; and other expenditures, telephone, travel, Delaware Science Fair, $200, to the Medical Legal Symposium; the auditors $200. Total disbursements, $20,427.05.

The cash balance as of August 31 was $16,981.54.

Of course, as I stated, we have four months to go. We have the State meeting to pay for, and dues and rent, and so on. But I do know that the budget for 1957 will be balanced.

It was my feeling as Treasurer and it was the feeling of the Council that it might be advisable, and the Council passed that we close our books as of August 31 so that we have just one auditing rather than an audit as of August 31 for eight months and an audit at the end of the year.

Mr. Chairman, that concludes my report.

Chairman Murray: Do you want to report for the Budget Committee now?

## COMMITTEE ON THE BUDGET

### Proposed Budget for 1958

| | | |
|---|---|---|
| **Receipts** | | |
| Dues | | $19,000.00 |
| Exhibits | | 700.00 |
| Dinner Tickets | | 750.00 |
| Dividends | | 500.00 |
| Journal's Contribution | | 480.00 |
| A.M.A. Reimbursement | | 70.00 |
| | | $21,500.00 |
| **Disbursements** | | |
| Salaries, Executive Sec. | $ 7,000.00 | |
| Secretary | 3,000.00 | |
| Tax provision (S.S.) | 160.00 | |
| | $10,160.00 | |
| **Operations** | | |
| Journal Subscriptions | $ 1,275.00 | |
| Delaware Academy of Medicine Contribution | 1,000.00 | |
| Committee on Public Laws | 200.00 | |
| Committee on Medical Service and Public Relations | 500.00 | |
| Committee on Medical Education | 500.00 | |
| Committee on A.M.E.F. | 100.00 | |
| Committee on Grievances and Medicare Adjudication | 75.00 | |
| Other Committees | 200.00 | |
| Auditor | 200.00 | |
| Miscellaneous | 200.00 | |
| | $ 4,250.00 | |
| **Office** | | |
| Rent | $ 900.00 | |
| Dictating Equipment | 450.00 | |
| Telephone, Telegraph, and Electricity | 400.00 | |
| Printing and Stationery | 450.00 | |
| Miscellaneous | 150.00 | |
| | $ 2,350.00 | |
| **Travel** | | |
| AMA—Delegates | $ 700.00 | |
| AMA Conference | 425.00 | |
| AMA Public Relations Institute | 135.00 | |
| Guest Speakers | 200.00 | |
| Local | 300.00 | |
| Contingency | 200.00 | |
| | $ 1,960.00 | |
| **Annual Meeting** | | |
| Rent | $ 300.00 | |
| Program and Tickets | 300.00 | |
| Badges | 70.00 | |
| Stenotyping | 350.00 | |
| Prospectus | 50.00 | |
| Clerical | 45.00 | |
| Dinner and Supper | 1,100.00 | |
| | $ 2,215.00 | |
| Balance for Contingencies | | $ 565.00 |

Respectfully submitted,  
Charles Levy, M.D.  
T. H. Pennock, M.D.  
M. A. Tarumianz, M.D.  
H. J. Laggner, M.D.  
Felix Mick, M.D.

CHAIRMAN MURRAY: It is not necessary to vote to accept or reject the report.

DR. WASHBURN: May I ask a question?

CHAIRMAN MURRAY: Yes.

DR. WASHBURN: I didn't understand Dr. Levy in one thing. In your budget did you include an appropriation for the use of the Academy?

DR. LEVY: Yes.

CHAIRMAN MURRAY: That was passed at the last House of Delegates meeting, to make it mandatory to give $1,000.

Do I hear a motion regarding the report of the Budget Committee?

(A motion was made, seconded and carried accepting the report of the Budget Committee.)

CHAIRMAN MURRAY: We now have a report of the Publications Committee, Dr. Clagett.

## REPORT OF THE EDITOR

October 1, 1957

To the House of Delegates
Medical Society of Delaware

At the time of the last annual report, the Journal was suffering from a lack of publication-worthy material. This problem has been somewhat relieved, the material coming to the editor earlier and in better shape than previously. Much of this progress undoubtedly is due to the active and enthusiastic Editorial Advisory Board appointed by the President upon the recommendation of the Publications Committee. This Board met in Wilmington on December 17, 1956 with 16 of its 21 members present. Six of these members came from Kent and Sussex Counties.

The editor continues to have the problem of the occasional individual who promises a paper for publication, fails to keep his promise by a matter of weeks, and reacts with anger when his paper is not published. Such incidents have interfered seriously with the publication date of the Journal which, in turn, has been a cause of concern to our advertisers.

The Publications Committee, therefore, met on September 16, 1957 and unanimously approved a deadline submitted by the editor for material to be submitted for any given issue. The Committee further gave the editor authority to adhere strictly to this deadline, even if by so doing a guilty hospital or agency lose sponsorship of a given issue.

The schedule as approved:

| *Month* | *Sponsor* | *Deadline* |
|---|---|---|
| Jan. | Open | Nov. 15 |
| Feb. | Delaware Hospital | Dec. 15 |
| Mar. | V.A. Hospital | Jan. 15 |
| Apr. | Memorial Hospital | Feb. 15 |
| May | St. Francis Hospital | Mar. 15 |
| June | Wilmington General Hospital | Apr. 15 |
| July | Delaware Hospital | May 15 |
| Aug. | Mental Hygiene | June 15 |
| Sept. | Board of Health | July 15 |
| Oct. | Memorial Hospital | Aug. 15 |
| Nov. | St. Francis Hospital | Sept. 15 |
| Dec. | Downstate Hospitals | Oct. 15 |

The editor, at his own expense, attended the annual meeting of the American Medical Writers' Association in Chicago in September, 1956 and a regional meeting of editors of the Southeastern States in Atlanta in November, 1956. The Executive Secretary attended the latter meeting. The editor reports that these meetings were of great value to anyone connected with the publication of the Journal and recommends that other personnel be encouraged to attend such meetings in the future.

Respectfully submitted,
A. HENRY CLAGETT, JR., M.D.
*Editor*

I do think, Mr. President, that we should have the approval from the House of Delegates merely on that point of adhering strictly to the deadline.

Thank you.

CHAIRMAN MURRAY: Do you make a motion to that effect, Dr. Clagett?

DR. CLAGGETT: I so move.

(The motion was seconded, and carried approving the recommendation of the Publications Committee.)

## REPORT OF THE MANAGING EDITOR AND BUSINESS MANAGER

Conclusion of Operations, July, 1956, Issue to Conclusion of Operations, July, 1957, Issue.

A. CHECKING ACCOUNT

| | | |
|---|---|---|
| Balance in Checking Account, August 1, (i.e., conclusion of operations, July issue) 1956 | | $ 3,129.67 |
| RECEIPTS | | |
| Advertising | $19,884.19 | |
| Subscriptions | 1,466.35 | |
| Single Copy Sales | 7.52 | |
| Royalties | .44 | |
| Roster Sales | 25.00 | |
| SMJAB-Share of Profits | 837.24 | |
| Interest—U. S. Bonds | 87.50 | |
| Reimbursement for cuts | 19.36 | |
| | | $22,327.60 |
| DISBURSEMENTS | | |
| Printing and Mailing Journal | $15,310.08 | |
| Salaries, excluding Taxes withheld | 3,349.48 | |
| Taxes pd, including Taxes withheld | 93.54 | |
| Addressing of Envelopes | 120.00 | |
| Plates | 41.53 | |
| Reprints | 27.75 | |
| Extra Copies | 25.00 | |
| Transcription | 65.00 | |
| Telephone | 31.30 | |
| Copyrights | 48.00 | |
| Printing of Rosters | 157.00 | |
| Refund of Agency Commissions | 18.21 | |
| Records Safe | 47.16 | |
| Insurance | 92.85 | |
| American Medical Directory | 30.00 | |
| Stationery | 35.75 | |
| Southeastern State Medical Journal Conference, Expenses, Business Mgr. | 117.00 | |
| Registration, Editor | 10.00 | |
| | | 19,619.65 |
| Balance After Operations | $ 5,837.62 | |
| Less Paid Bills Chargeable to 1957-1958 fiscal year | 248.04 | |
| Balance in Account, Conclusion of operations, July, 1957, issue | | 5,589.58 |
| Balance After Operations | $ 5,837.62 | |
| Less Tax Provisions Held in Bank | 133.20 | |
| Assets After Operations | $ 5,704.42 | |
| Less Balance, Conclusion of Operations July, 1956, issue | 3,129.67 | |
| Profit from Operations | $ 2,574.75 | |

| | | |
|---|---|---|
| B. Savings Accounts | | |
| Wilmington Savings Fund Society | | |
| Balance, August 1, 1956 | $ 3,520.93 | |
| Interest | 105.60 | |
| Balance August 1, 1957 | $ 3,626.53 | |
| Wilmington Trust Company | | |
| Balance, August 1, 1956 | $ 1,711.25 | |
| Interest | 36.81 | |
| Balance, August 1, 1957 | $ 1,748.06 | |
| Balance in Savings Accounts | | $ 5,374.59 |
| C. War Bonds | | |
| U. S. War Bonds Purchased Dec. 10, 1942 | $ 3,502.38 | |
| U. S. War Bonds Balance, August 1, 1957 | | $ 3,502.38 |
| Total Accounts, A. B. and C. | | $14,466.55 |

M. A. Tarumianz, M.D.
*Managing Editor*
Lawrence C. Morris, Jr.
*Business Manager*

Chairman Murray: Now the report on Scientific Work.

## REPORT OF COMMITTEE ON SCIENTIFIC WORK

October 16, 1957

House of Delegates
Medical Society of Delaware
621 Delaware Avenue
Wilmington, Delaware

The Committee has consulted with the President of the Society on several occasions in an effort to provide help in the formulation of the Scientific Program for the annual meeting. The Committee has also met to arrange with the Executive Secretary for the Scientific exhibits at the annual meeting.

Respectfully submitted,
Norman L. Cannon, M.D.
*Chairman*
J. Roscoe Elliott, M.D.
James F. Flanders, M.D.

Chairman Murray: The next report is the report of the Woman's Auxiliary.

## REPORT OF THE WOMAN'S AUXILIARY

I am very pleased to have this opportunity to give you a composite picture of the Auxiliary Activities and to bring greetings from the (280) members.

Ours is an ascending picture. Our membership has been increased by (35) new members and we are one of the few states that are 100% organized.

American Medical Education Foundation contributions have risen and support was received from all three counties. The use of Memorial cards has been emphasized and our members are beginning to use them and realize their effectiveness. At the National Convention in June, we placed twelfth in contributions per capita membership.

Today's Health — We have had a distinct gain in subscriptions; in fact, the largest in our history. Total subscriptions number (177) — an increase of (109).

The Bulletin is used chiefly by our State and County Officers, and Committee Chairmen. Subscriptions number (47) — slightly higher than a year ago. County Presidents feel that subscriptions should remain on a voluntary basis.

State Medical Society — We have always enjoyed a very happy working relationship with the Medical Society of Delaware. We are most grateful for allotted space, each month, in their Medical Journal. This recognition is greatly appreciated. I feel this is our only "Foot In The Door" of the disinterested member and the only medium to reach every one in the Auxiliary, and even some of our Medical Society. It has been my privilege to submit this monthly article on some phase of local, state, or national auxiliary work.

The most effective Public Relations was done through direct Community Services. Of no small value was that given to hospitals and similar institutions. Service was also given to such organizations as Study Clubs, The Symphony Association, Art Clubs, and other cultural endeavors.

Toys, records, books, clothing and cash contributions were sent to the Hospital for the Mentally Retarded at Stockley. Medical samples have been collected, packed and shipped to the Doctors Miller.

A booth was staffed and small gifts provided for patients at the Delaware State Hospital for their Annual Carnival.

The New Castle County Auxiliary completed (250) garments for the Visiting Nurse Association.

Legislation — Highlights presented at all meetings by the Chairman and, through her efforts, a keen awareness of the importance of being informed was developed.

Mental Health Activities were twofold — Education and Services. Many members worked regularly with the Volunteer Services Committee of the Mental Health Association, sponsoring volunteer activities at the State Hospital. This program has gained impetus in the last year. The State Program Chairman and the State President are also privileged to be members of the Woman's Auxiliary to the Delaware State Hospital and Governor Bacon Health Center, and served as hostesses for the Open House at the Delaware State Hospital during Mental Health Week.

Publicity has been splendid. Special Auxiliary Events received newspaper and radio coverage.

Auxiliary Records — With no Central Office, the up-to-date files are in the hands of the President.

The Nurse Recruitment Program received our staunchest support. The Committee started its annual campaign for nursing scholarship applicants by sending revised form letters to all high schools, including private and parochial. Four (4) scholarships were given this year and the Committee screened the (9) girls awarded scholarships by the Wilmington Rotary Club (a project inaugurated through the efforts of the New Castle County Auxiliary). To date, since 1950, twenty (20) scholarships, totalling $4,450.00, have been awarded. Of these (20) students, (6) have graduated, (6) have left training, (8) are now in training (4 just starting).

There has been an increased interest in Future Nurses Clubs. The Chairman fulfilled a request to speak to a local high school club. One member assisted with the organization of a club in her community high school. There are fifteen Future Nurses Clubs not Auxiliary sponsored.

The efforts put into developing and counselling these Clubs pay dividends, not only in obtaining students for nursing, but also in helping adult nurse recruiters understand today's teen-agers and tomorrow's nurses.

The Chairman and Co-Chairman of the Careers Committee of the Delaware League for Nursing are active Auxiliary members. The Chairman of Nurses Enrollment and Nursing Service in the Delaware Chapter of the American Red Cross are also past State Presidents.

Each county followed the National program suggestions whenever possible and adapted them to the needs and demands of the local communities. Enough social functions were interwoven with the service program to maintain balance.

Civil Defense gained some momentum, but not as much as the Chairman would like to report. Literature on a First Aid Kit for your car was distributed to the entire organization.

Safety — Traffic, home, and school safety were stressed. After attending a Home Safety Institute, sponsored by the Delaware Safety Council and the State Board of Health, the President attempted to relay the substance in the Auxiliary News column.

Since assuming the Presidency in September, 1956, I have traveled 7,850 miles on Auxiliary business. I attended the State Meetings of Pennsylvania, Maryland, New York and New Jersey; Pennsylvania's Mid-Year Conference in Harrisburg; The Tri-State Hospital Meeting in Washington, D.C.; the Auxiliary functions in Seattle during the Clinical Sessions of the American Medical Association; the Annual Meeting in New York in June, and the recent Convention of the American Hospital Associations in Atlantic City.

The President represented the State Auxiliary at the 50th Anniversary Christmas Seal Luncheon and attended a card party, sponsored by the New Castle County Auxiliary, which benefited the Nurses Scholarship Fund.

I presided at the State Executive Committee Meetings and was a guest speaker at two County Meetings. (450) pieces of mail were sent out under my signature. Other writing includes five articles for the State Auxiliary President's Page in the Delaware State Medical Journal; an article for the National Bulletin on the History of our Delaware Auxiliary; another on Today's Health Work Plans, and a report of our year's activities that appeared in the September Bulletin. At the New York Convention, I was happy and proud to give an oral report on our accomplishments.

The common denominator of all the projects we support is health education, plus public relations, and it is with a deep feeling of gratitude to the Executive Board, the County Auxiliaries, Dr. Roger Murray, Mr. Lawrence Morris, and my kind, tolerant and understanding husband for their continued efforts and counsel responsible for filling my year with enthusiasm and workable ideas.

It has been a privilege and a pleasure to serve as President — the experience has been stimulating and rewarding.

Respectfully submitted,
LOUISE H. MCGUIRE

CHAIRMAN MURRAY: We have a very valuable and active auxiliary there. They are really workers. As a matter of fact, it made me feel quite bad in one case because I could not think of a project to get them involved in.

We will now have the reports of the special committees, the Advisory Committee of the Woman's Auxiliary, Dr. McGuire.

## ADVISORY COMMITTEE—WOMAN'S AUXILIARY

The Committee has held no formal meetings. Frequent consultations, debates and meditations with the current Auxiliary president was your chairman's obligation. A note of approval and commendation to that species (femalus), our wives, is due. They served with dedication in community, civic, and hospital activities. Beyond that, they manage our homes, direct our children, and tolerate our shortcomings.

Respectfully submitted,
H. T. MCGUIRE, M.D.
*Chairman*

CHAIRMAN MURRAY: The next report is the report of the Committee on Alcoholism, which will be presented by title only, no recommendations. It is simply a review of the alcohol problem in the State and the facilities for treatment of alcoholism. It will make very interesting reading when published in the Journal, but we see no use taking your time here.

## REPORT OF THE COMMITTEE ON ALCOHOLISM

Mr. President and members of the House of Delegates of the Medical Society of Delaware:

No accurate data are available on the number of alcoholics in the present population of the State of Delaware. The number who have found their way into several of our state institutions during the fiscal year 1956-1957, however, reinforces our belief that alcoholism is still a serious socio-medical problem.

This report presents data concerning alcoholics treated between July 1st, 1956 and June 30th, 1957, at the Delaware State Hospital, Farnhurst, the Governor Bacon Health Center, Delaware City, the State Welfare Home and Hospital for the Chronically Ill, Smyrna, and the Delcastle Farm, a unit of the New Castle County Correctional Institution. The first section of the report will give general information regarding alcoholics treated at the four institutions. The second section will discuss more in detail the treatment program of the alcoholic rehabilitation unit of the Governor Bacon Health Center.

### DELAWARE STATE HOSPITAL

At the Delaware State Hospital in the fiscal year 1956-57 there were 54 alcoholics among the patients admitted for the first time. Of this number 20 were frankly psychotic. Twenty-two had delirium tremens, and one had chronic brain damage associated with alcoholism with behavioral reaction. Eleven of the first admissions were alcohol addicts without psychosis. There were thirteen readmissions of whom five were frankly psychotic. Three had delirium tremens. One had chronic brain damage with alcoholism with behavioral reaction. Four were alcohol addicts without psychosis. Of the 67 admissions and readmissions 62 were committed by a court. Five were voluntary admissions. Forty alcoholics went on trial visit during the fiscal year. One died in the hospital, although alcoholism was not the primary cause of death. Twenty alcoholics are still in the State Hospital.

### GOVERNOR BACON HEALTH CENTER

The Alcoholic Rehabilitation Unit of the Governor Bacon Health Center received 112 patients admitted for the first time to a psychiatric hospital. There were 111 readmissions, fifteen of whom were admitted to the Governor Bacon Health Center for the first time but each of them had been a patient in a psychiatric hospital at some time prior to admission at the Health Center. Of the total number of first admissions and readmissions (223) to the Alcoholic Rehabilitation Unit, 52 were court committed; 171 were voluntary admissions. During the past fiscal year there were 231 discharges from the unit. One alcoholic patient died while on a pass to a general hospital for study and special treatment.

### Welfare Home and Hospital for the Chronically Ill

Of the patients admitted for the first time to the Welfare Home and Hospital for the Chronically Ill during the past fiscal year 14 were chronic alcoholics. Among patients readmitted there were 9 alcoholics. Eight alcoholics were discharged, and 1 died.

### Delcastle Farm

During the fiscal year 1956-1957, the New Castle County Correctional Institution received 2,296 commitments on charges of being drunk and disorderly. Although exact figures are not yet available, it is estimated that this number of commitments involves about 500 individuals. Many of these are the "Skid Row" group, principally homeless men who have had four or more commitments during the year. There were 625 commitments for driving while drunk. The number of commitments would be considerably increased if to it were added the commitments for crimes perpetrated under the influence of intoxicants. The courts recognize that the use of liquor contributes seriously to the problems of delinquency and crime in the state.

### The Alcoholic Program at the Governor Bacon Health Center

The Alcoholic Rehabilitation Unit of the Governor Bacon Health Center was one of the departments included in the plans when the Health Center became a reality through legislative action in 1946. Title 16 of the Delaware Code, Annotated (Chapter 53, Subchapter 1, Paragraph 5304, Section 5) reads, "The State Board of Trustees may establish under the direction of the State Board of Trustees of the Hospital, . . . (5) A department for men and women of all ages who suffer from alcoholism or who are drug addicts and who are without psychosis, either acute or chronic."

Included in the law is the further provision, "No man or woman suffering from alcoholism or being a drug addict without psychosis, either acute or chronic shall be admitted to the Center except upon the person's own appplication or the application of the person's parents, or the surviving parent or legal guardian, or in the event of none such, upon the application of any physician or institution treating or having the care or custody of any such person or by commitment of any court of this State having jurisdiction over any such person." (Ibid., Subchapter 2, Paragraph 5321, Section 5.)

On July 12, 1956, the Superintendent of the Governor Bacon Health Center presented to the State Board of Trustees in their regular monthly meeting, the proposal that alcoholics "who leave the Health Center against medical advice in less than 28 days, or who return to the Center from pass in an intoxicated condition, or who are discharged for administrative reasons, will be listed, and upon application for readmission, the referring agent should be informed that they can be admitted to the Center only upon the execution of a Court commitment for thirty days." The State Board of Trustees officially approved this recommendation. Since that date this practice has been maintained.

### Type of Referral

*Court Commitment:* Of the 88 male and 24 female first admissions to the Alcoholic Rehabilitation Unit during the fiscal year 1956-1957, eleven males and seven females respectively were court committed. Among the readmissions, comprising 100 males and 11 females, were 32 males and 2 females who had been committed by a court of the state.

*Voluntary Admissions:* Referrals for the 171 voluntary admissions and readmissions were received from various sources. Among these the most important in terms of frequency were Alcoholics Anonymous, which referred 65 patients, and physicians, who referred 47. Other referrals were received from relatives, general hospitals, Salvation Army officials, court and city officials (without committing the persons), clergymen, Prisoner's Aid Society, state welfare agencies, the Delaware Alcoholic Beverage Control Board, and a U. S. probation officer. Nine males who had been patients at the Health Center previously requested their own readmission.

### Diagnosis

*Diagnosis of Patients Admitted:* The following diagnoses were made on the 223 patients first admitted and readmitted to the Alcoholics Rehabilitation Unit during the past fiscal year. Each patient was studied and diagnosed. On the basis of this diagnostic study each patient's treatment program was arranged to meet his particular needs. The diagnosis rȧnking highest in incidence was Sociopathic Personality Disturbance, Alcoholism (Addiction), which was assigned to 166 or 74.4 per cent of these admissions. Five of these alcoholic patients (three males, two females) were also addicted to drugs. Physical diseases and defects present in the alcoholic patients admitted were mostly of a degenerative nature. In four cases two or more of the diseases were present.

### Patients Transferred and Discharged

*Transfers to Delaware State Hospital:* During the fiscal year five alcoholic patients were transferred directly to the Delaware State Hospital. They were males. One had been treated at the Health Center for more than a year (402 days). When he became frankly psychotic he was transferred to the State Hospital.

*Discharges:* The total number of discharges from the Alcoholic Rehabilitation Unit was 231, of which 195 were male, 36 female. The length of residence of these patients ranged from three hours to two years, two months, twenty-four days (814 days). There were two male patients who remained only a few hours. One walked away without permission; the other insisted on leaving although against medical advice. The average length of residence for male patients was 58.9 days, for female patients 44.4 days. The average length of residence for the total group discharged was 56.7 days. The number of patients remaining 28 days or longer, 28 being the minimum number of days required, was 144 (116 males, 28 females). This represented 59.5 per cent of the male discharges, 77.8 per cent of the female discharges.

There were 126 (or 64.6 per cent) of the male patients whose condition at the time of discharge was rated as improved. Thirty-two or 88.9 per cent of the female alcoholic patients were discharged as improved. Sixty-eight male patients (34.9 per cent of the males) and four female patients (11.1 per cent of the females) were discharged unimproved and against medical advice. There was one administrative discharge of an out-of-state patient, whose condition on discharge was not indicated.

Among the male patients discharged as unimproved were five who returned from a pass under the influence of liquor, nine who left without the permission or knowledge of the Staff, and two who were discharged because of failure to observe the rules of the hospital.

### Treatment of Alcoholics

*Medical Treatment:* On admission every patient routinely has a complete physical examination by the admitting physician. X-ray examinations of chest and skull are also routine, as well as blood serology and other laboratory tests. Alcoholic patients are seen as soon as possible after admission by the consultant on the alcoholic service. Referral of these patients to other consultants proceeds as needed. Vitamins and high protein diet are usually prescribed as many of the alcoholic patients on admission show serious vitamin deficiency and other signs of malnutrition. Chlorpromazine and other "tranquilizers" are administered as needed.

*Temposil Study:* In July 1956, the former Medical Director of the Governor Bacon Health Center, with the cooperation of the American Cyanamid Company, began an experimental study of the effectiveness of Temposil in assisting alcoholics to refrain from drinking. Some twelve patients were given the above drug on an experimental basis. As yet there are no conclusions on the study. Like Antabuse, the effectiveness of Temposil is dependent on the conditioning process as well as on the patient's motivation and cooperation.

*Work Therapy:* When the alcoholic patient's physical condition warrants it, and the attending physician has given approval, the patient is assigned to a job in the hospital. An effort is made, whenever possible, to assign alcoholic patients to jobs for which they have aptitude and skill. The work program serves an important function in the rehabilitation process as frequently the alcoholic patients have been unemployed for periods of varying length before their hospitalization. The job is more than a device to keep the patient occupied. It is an opportunity for him to increase his self-respect by contributing to the welfare of others. He also earns credit toward his hospital expenses and spending money for items like cigarettes and snacks at the Commissary.

*Counseling and Other Therapeutic Procedures:*

Diagnostic staff meetings attended by the Consultant on the Alcoholic Service, the Acting Clinical Director, the Chief Psychologist, the Coordinator of Research, the Pastoral Counselor and the Chaplain, are held weekly. During the 1956-1957 fiscal year, 46 such staff meetings were held. Ninety-two patients were seen individually in these staff meetings, and seventeen were represented. Psychological evaluations are made under the direction of the Chief Psychologist whenever such procedures seem pertinent for diagnostic or treatment purposes.

Members of Alcoholics Anonymous act as sponsors for the patients, in numerous instances making the referral, as has already been pointed out. An A.A. group has been organized at the Health Center. A meeting attended by members of the Wilmington A.A. groups is held weekly at the Center. For several months an additional meeting was held weekly under the sponsorship of A.A. members of lower Delaware. In a number of instances the first acquaintance with A.A. made by some of the alcoholic patients has occurred during their hospitalization at the Health Center.

Mention should be made of the active program of A.A. sponsorship and assistance to alcoholics offered by the Family Court of New Castle County. Alcoholics who have come to the attention of the Family Court are frequently referred as voluntary admissions or are committed to the Alcoholic Rehabilitation Unit of the Center if no crime is involved in their association with the Court. Persons whose transgression of the law is only in regard to drinking intoxicants and does not include some felony are now being rehabilitated at the Delcastle Farm of the New Castle County Correctional Institution. Individual and group counseling is in progress at that institution under the sponsorship of A.A.

Members of the A.A. have been helpful to alcoholic patients at the Health Center in assisting them to find suitable lodgings to which they could go after discharge, in cases in which the patients have lost contact with their families, and if any family ties still exist A.A. members also help discharged patients during the period when they are job-hunting.

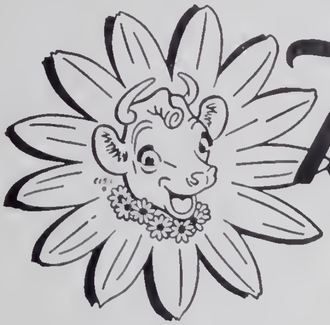
Referral to the Vocational Rehabilitation Counselor is made for patients who seem suitable subjects for the services of this agency. This agency has some hesitation about attempting to work with alcoholics whose diagnosis is sociopathic personality disturbance.

*Special Problems:* Several problems have presented themselves as work with the alcoholic patients has proceeded. As has been indicated above, patients were returning from off-ground passes with definite evidence of having imbibed intoxicants. In come instances patients have brought liquor into the Health Center. In view of this situation, it seemed wise to eliminate all off-grounds passes for alcoholic patients during their hospitalization. The Staff feels that intensive treatment during the patient's hospitalization for a short period is more useful to him than a more prolonged residence during which he may occasionally rejoin his drinking friends and drink while he is on a pass.

There is still need for community agencies to supplement the work of A.A. in providing wholesome association and activities for alcoholics who have been discharged from treatment. Too often the alcoholic leaves the hospital and returns to the same house, the same neighborhood, the same convivial friends. In some instances, it is only a matter of a few weeks before the patient is drinking again and is seeking further help. Churches, community centers, and other agencies in the community must seek to draw into their membership these troubled people, the alcoholics, who frequently leave the treatment center with high intentions and hopes for rehabilitation only to find no welcome except among the drinking crowd.

Physicians have a responsibility to guide their patients into active treatment of the problems which may underlie the addiction to alcohol and not merely treat the patient's somatic condition which may have resulted from or may have been aggravated by excessive drinking.

M. A. Tarumianz, M.D., *Chairman*
H. T. McGuire, M.D.
C. J. Prickett, M.D.
Bruce Barnes, M.D.



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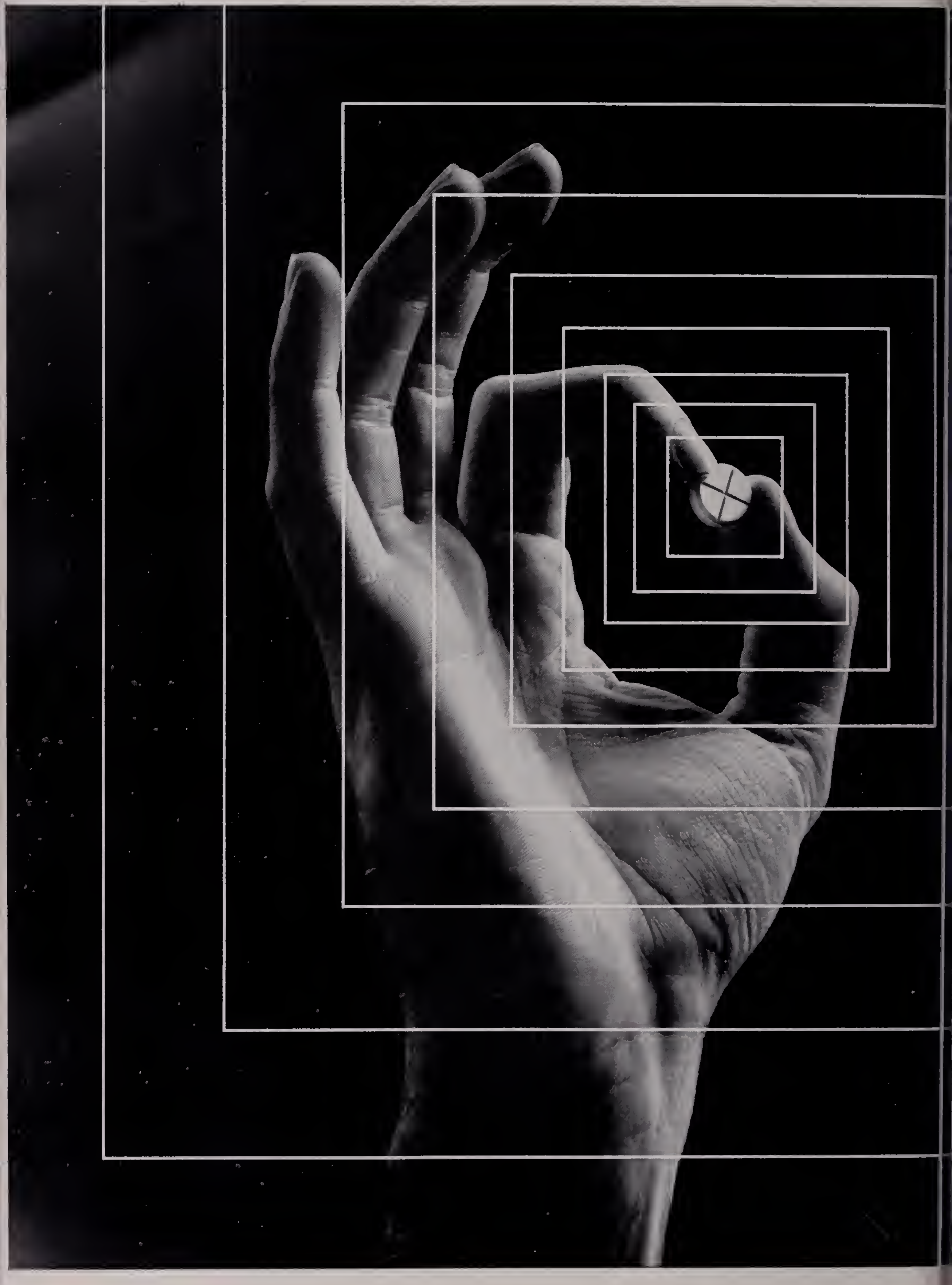

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1. Nichols, R. L. and Finland, M.: *J. Clin. Med.* 49:410, 1957.

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Next is the report of the American Medical Education Foundation Committee.

Sept. 30, 1957

So far we have no complete report on the A.M.E.F. committee, as we have decided to put off the Drive for the funds until the last two or three months of the year.

The money which has been sent direct to the A.M.E.F. is $612.00 which is up to date. (Sept. 30, 1957). We hope to make our goal about $8,500.00 this year which is about $1,000.00 more than the committee collected in 1956.

We plan to have a booth at the state meeting next to the registrar desk to facilitate the voluntary contributions which members may desire to make.

The booth will be staffed by an attractive model.

GERALD O. POOLE, M.D.

FROM THE FLOOR: Is that a drive for 1957 or '58? Is this solicitation for 1957 or '58?

MR. MORRIS: The committee will be having its major drive starting about the first of November.

FROM THE FLOOR: For what year?

MR. MORRIS: For 1957 because at that time it becomes a little more obvious to most people what they will have available for such projects.

SECRETARY CANNON: Do you want to move for the acceptance of that report?

CHAIRMAN MURRAY: Do you desire to accept the report of the Committee on American Medical Education Foundation?

(A motion was made, seconded and carried approving the report of the Committee on American Medical Education Foundation.)

CHAIRMAN MURRAY: The next is the report of the Committee on Cancer.

## REPORT OF THE CANCER COMMITTEE

Mr. President, Members of the House of Delegates;

Individual members of the committee and many other members of the society have been and remain active in the program of the American Cancer Society, and some members are concerned with the Cancer program of the State Board of Health. Annual reports of the activities of the Cancer Society and of the Board of Health are published for all to review.

The committee has initiated no activity of its own and has no recommendations for the House of Delegates.

Respectfully submitted,
LESLIE M. DOBSON, M.D.
*Chairman*

CHAIRMAN MURRAY: It was the feeling of the Council about this Committee and about some others which we will make a note of when we come to them that the Committee should be abolished and we would just appoint one member of the Society as sort of a liaison between the Society and those organizations engaged in cancer control activity in the State, such as the State Board of Health and the Delaware Division of the American Society for Control of Cancer.

Next is the Committee on Diabetes, Dr. Flinn.

## REPORT OF COMMITTEE ON DIABETES

House of Delegates
Medical Society of Delaware
October, 1957

During the year, the Committee has cooperated with, and met with members of the American Diabetes Association in Delaware, with the Governor for Delaware, of the American Diabetes Association, acting as Chairman. Efforts have been made to increase interest in diabetes and to promote a spread of pertinent information on this disease to the public and to the profession. This was carried out specifically during Diabetes Week in 1956, and will again be carried out during this particular week, from November 18-23, 1957. Cooperation of all physicians particularly during this week to examine, free of charge, urines for sugar of their patients, or any other individuals who so request. They are also asked to stimulate interest in this regard by actively promoting urine testing for sugar.

We also have been glad to cooperate with the various agencies interested in promoting and continuing the medical health forums held in Wilmington, in securing Dr. Howard Root, of the Joslyn Clinic in Boston, for the speaker at a Public Forum to be held in February on Diabetes.

The question of establishing a clinical affiliate for the American Diabetes Association in Delaware is receiving close attention. If such an affiliate should be established in Delaware, it would greatly facilitate the activities of the Medical Society of Delaware in regard to Diabetes.

LEWIS B. FLINN, M.D.
*Chairman*

DR. LEWIS B. FLINN
DR. CHARLES LEVY
DR. DOUGLAS H. AITKEN
DR. THOMAS J. TOBIN
DR. JOHN J. LAZZERI
DR. ROBERT L. DEWEES

CHAIRMAN MURRAY: What is your pleasure in regard to this report?

(A motion was made, seconded and carried to accept the report of the Committee on Diabetes.)

CHAIRMAN MURRAY: The next report is the report on the Grievance Board and Medicare Adjudication. Since this report involves some controversy, I wonder if we could excuse our Stenotypist so that the members might not be hampered in their freedom of speech or lack of freedom of speech.

(The Stenotypist was then excused during the discussion by the House of Delegates on the Grievance Board and Medicare Adjudication report.)

CHAIRMAN MURRAY: The next report is the report of the Committee on Heart Disease. Again this committee has not met and its report for some time has solely been a summary of the activities of the Heart Association of the State. So the Council decided on the abolishment of this committee and the appointment of one man from the Society who will act as a liaison between the Society and the Heart Association.

## REPORT OF THE COMMITTEE ON HEART DISEASE, MEDICAL SOCIETY OF DELAWARE

Considerable progress has been made in the State of Delaware since the report of 1956, chiefly in the realm of lay education and in expansion of research projects conducted in the confines of the state.

In 1956 it was reported that regular clinics were being held at the Memorial Hospital, the Delaware Hospital and the Wilmington General Hospital in Wilmington, at the Beebe Hospital in Lewes, at Nanticoke Memorial Hospital in Seaford, for the diagnosis and followup care of heart disease. In addition, the Screening Clinic for Congenital Heart Disease, sponsored by the Delaware Heart Association and headed by Dr. Harry Zinsser of the University of Pennsylvania Hospital Staff, sees patients regularly twice monthly at the Delaware Hospital.

In the field of education of lay people in heart subjects of interest, the following has been done: (1) A heart exhibit at the Kent-Sussex County Fair, which was esentially made up of a film on coronary artery diseases; (2) Several heart films shown in all of the counties of Delaware to groups who have requested these films from the library of the Delaware Heart Association; (3) A project in which the Delaware Heart Association is collaborating with the Delaware State Nurses' Association in a Nurses' Seminar to be held January 29 and 30, in 1958; (4) An active educational program sponsored by the Delaware Heart Association itself for any lay groups interested in such information.

The Delaware Heart Association reports that it is earnestly endeavoring to promote an active campaign for cardiacs in industry. This program is deserving of the support of all members of this Society.

Research projects as reported in 1956 have brought some worthwhile results, and for the year 1956-1957 the following research projects have been approved by the Delaware Heart Association, and funds have been allocated for each of these topics: (1) The influence of carbohydrate metabolism on cholesterol atheromatosis in rabbits, conducted by Dr. Pollock and his group at the Kent General Hospital; (2) Studies of diffusable blood constituents across dialyzing membranes, conducted by a group headed by Dr. Alan Mather at the Memorial Hospital in Wilmington; (3) Study of degenerative cardiovascular disease by a group at the Delaware Hospital headed by David J. Reinhardt, III, M.D.

The Delaware Heart Association has collaborated with and financed twenty-one deserving cardiac children to attend a camp at Fairlea Manor in Maryland during the summer of 1957. Four of these children came from Sussex County, three from Kent County, two from Governor Bacon Health Center, and twelve from New Castle County.

The Committee on Heart Disease of the Medical Society of Delaware is encouraged by the pace which is being kept, and by the progress which is being made in bringing many matters about heart disease to the attention of the public. The expansion of the research grants in aid in the state is probably the most encouraging progress made since the last report.

Respectfully submitted,
COMMITTEE ON HEART DISEASE
EDWARD M. KRIEGER, M.D.
*Chairman*

DR. A. H. CLAGETT
DR. W. W. BRIGGS
DR. F. R. EVERETT
DR. J. W. ANNAND
DR. J. L. FOX

The next report is the report of the Committee on Hospital-Physician Relationships. This report contains no recommendations, and we recommend it just be read by title.

The next report is the report on Maternity and Infant Mortality, Dr. Hassler.

## REPORT OF COMMITTEE ON MATERNAL AND FETAL MORTALITY

The Committee on Maternal and Child Care of the Council of Medical Service, A.M.A. is currently engaged in a nation-wide study of programs such as ours, dealing with the study of maternal and perinatal deaths.

Your chairman spent several hours on August 22, 1957 with Mr. Donald Berg of the Council on Medical Service, A.M.A. staff. He was pleased to find that our maternal and fetal death studies were begun in 1916, when there were 669 infant deaths and 27 maternal deaths. The all time high for infant and maternal deaths occurred in 1918, probably a reflection of the wide spread influenza epidemic at that time. There were 769 infant deaths and 46 maternal deaths.

The Delaware Committee on Maternal and Infant Mortality was established by the Delaware State Medical Society's House of Delegates on October 11, 1937. Appropriately enough this motion to appoint a Committee on Maternal and Infant Mortality was made by the late Dr. Edwin Bird whose long and able service to the State Medical Society shall always be remembered.

Much credit must be given to the State Board of Health and the current and past members of this Committee for their able handling of a long and difficult task.

We are pleased to report that during 1956 there were only three maternal deaths. These shall be designated as A, B, and C.

Case A: Classified: Direct obstetric cause, preventable.
In which factors of responsibility are unquestionably assigned to the patient herself and her husband. Both refused to accept hospitalization as advised. Ultimately the patient was taken to the hospital in spite of family objections but was never admitted, she was D.O.A.

Case B: Gravida IX, Para IX.
Classified: Non-related causes, non-preventable.
This patient died of pulmonary emboli, resulting from chronic recurrent thrombophlebitis.
Pregnancy was not even suspected until discovered at the post-mortem examination. The amniotic sac was intact. There was no question of any criminal interference with the pregnancy.

Case C: Classified: Indirect obstetric cause, non-preventable.
The patient developed signs of cortical thrombosis, two weeks post partum. She was hospitalized for treatment and study, while there patient died suddenly. Post-mortem examination showed pulmonary embolism, thrombophlebitis of leg veins and veins of the left broad ligament.

### RECOMMENDATIONS OF YOUR COMMITTEE

I. That a copy of this report be sent to the Directors of the hospitals and the Obstetric and Pediatric Departments with a suggestion that it be discussed at a joint meeting of the departments.

A. That the following fundamental principles regarding care of the patient in premature labor be observed in as far as possible.
  1. Limitation of sedation to a minimum.
  2. Delivery of prematures under saddle block or pudendal block anesthesia.
  3. Use of generous episitomy and outlet forceps when indicated to protect the baby's head during delivery.
  4. Notification of Pediatric Department prior to delivery of premature.

B. That the Pediatric Staff be asked to:
  1. Review equipment so that proper facilities are available for the care of all newborns.
  2. To see that a physician whose sole duty is that of resuscitation of the baby is in attendance at all Caesarian sections; and that the babies being delivered by this route have their stomachs carefully lavaged.
  3. Do not feed babies while in respiratory distress.

II. That a report form similar to the one used by the Philadelphia Committee be adopted. The form would be completed by the doctor in charge of the case in which the baby is involved and its mother, and be returned to the Committee within two months of the neonatal death. The cause of the death and the responsibility for the death would then be classified by the Committee. This would most certainly lead to more adequate information concerning their death. The study could be expanded to cover death in the first thirty days and perhaps stillborns as well, since the function of the Committee in other sections has generally been to study perinatal mortality.

III. The Committee further recommends adequate nursing coverage for Labor and Delivery and Maternity floors, as well as, for newborns and the Premature Nursery.

IV. That each hospital set up a hospital committee to study and classify perinatal deaths and maternal deaths within one month after their occurrence.

V. Continued vigilance against excessive blood loss during all stages of delivery and of any possible source of infection during the patient's sojourn in the Labor and Delivery Rooms.

Your Maternal and Infant Mortality Committee

Dr. F. S. Hassler, Chairman, Wilmington, Delaware.
Dr. P. C. Trickett, Lewes, Delaware
Dr. R. O. Y. Warren, Wilmington, Delaware
Dr. K. L. Esterly, Wilmington, Delaware
Dr. A. M. Gehret, Wilmington, Delaware
Dr. B. G. Burton, Dover, Delaware
Dr. L. L. Fitchett, Milford, Delaware
Dr. A. H. Williams, Laurel, Delaware

The Committee further wishes to acknowledge the excellent work of three other Delaware physicians for their help in compiling this report. They are: Dr. John Baker of Milford, Delaware, Dr. Eugene Milewski, Wilmington, Delaware and Dr. Carl Pierce of Lewes, Delaware.

Respectfully submitted,
F. S. Hassler, M.D.

Chairman Murray: You have heard the report of the Committee on Maternity and Infant Mortality. Is there a motion to accept the report?

(A motion was made, seconded and carried accepting the report of the Committee on Maternity and Infant Mortality.)

Chairman Murray: Next is the report of the Committee on Medical Services and Public Relations, Dr. McGuire.

Mr. President, Members of the House of Delegates:

The current year has been an active one in the area of Medical service and public relations. In the interest of conciseness and brevity, only the significant material will be detailed in this report.

Your committee is conscious of its obligation in the area of service and public relations and to meet its obligation has attempted to develop good liaison between the members of the Society, the various media of communications, the State Legislative Bodies and the general public.

A meeting of the Poliomyelitis Committee of the American Medical Association was held in Chicago on January 26, 1957. At the request of President Murray, your Chairman attended this meeting. The purpose and intent of this assembly was to stimulate activity in the use of the Salk Vaccine. Persons of eminence in the field of epidemiology, virology, the president of the National Foundation, together with manufacturers of the Salk vaccine were present. Means and methods to stimulate greater utilization of the Salk vaccine were discussed. We were assured the supply was adequate and any program we developed on an individual state basis would be proper.

Following this meeting, your Committee met with President Murray and our Executive Secretary and outlined a program to promote the use of the Salk Vaccine. This program included the use of press releases, educational talks, radio and TV spot announcements.

It was emphasized that the vaccine was available in the offices of private physicians. All the County and State Society members were solicited and asked to cooperate in some manner in the program.

There was excellent liaison between the State and City Boards of Health; the cooperation of individual physicians contributing their time in supervising the public clinics. The people of the state are indebted to the Legislature for their wisdom in appropriating funds to make the Salk vaccine available. We are indebted to the nurses —public health and private—and to the many lay people who helped conduct the program. As you are aware, the vaccine very soon became short in supply and only again resumed in September.

The response of the Society and its members in this singularly important project, I believe, has been the finest public relations venture the Society has ever undertaken. It is of importance to note here that the public must not come to expect this kind of activity as a matter of obligation by the medical profession.

Subsequently your Committee met in conjunction with the Grievance Committee to discuss and develop material for your consideration.

The matter of Asian Influenza and the Society's responsibility in an education, prevention and treatment program was discussed. The Committee endorses the President's Committee's recommendations in the establishment of priorities in the distribution of the vaccine; further recommending that all physicians avail themselves for any type of service if we are faced with an epidemic. Public Health authorities estimate the effectiveness of prevention of the disease by vaccine to be 70 to 80%. The subcutaneous method of administration was approved. Priority to individuals working in areas of health, medical care and those essential in community functioning.

Your Committee recommends the use of private health information cards to be carried by individual patients. Distribution of this card is to be through individual doctors.

A weekly health column for distribution to weekly papers, in the Society's name, was recommended as a project for the 1958 Committee to explore.

The Committee approved Physicians commentators for a series of TV broadcasts outlining the health facilities of the State of Delaware.

The Committee suggests and strongly recommends that emergency call system be organized by various physicians in all areas of the state so that everyone's practice will at all times have responsible coverage.

It is recognized that the best public relations is for every individual doctor to meet at all times his professional responsibility. The determination of what is an emergency is made by the patient. Our obligations and moral responsibility decree that we must and should continue the fine standards of conduct established by our medical predecessors in the state of Delaware.

Historically and by dedication, we are devoted to the care of the sick—that is our primary mission. We are pretty much accepted for what we are—human beings with human frailities, possessing certain expert knowledge of which society has need. Our shortcomings are usually looked upon indulgently.

Recommendations — A more active participation in community affairs at all levels is urged if we are to meet our full responsibility of citizenship. Organization in the matter of complete coverage for every physician's practice is essential. Meeting our hospital staff responsibilities must be recognized.

Your Chairman is grateful for this Committee Assignment. I wish to acknowledge my thanks to the Committee Members, President Murray and to our Executive Secretary—Mr. Lawrence Morris—for their most kind and patronizing cooperation.

Respectfully submitted,
H. THOMAS MCGUIRE, M.D., *Chairman*
Medical Service and Public
Relations Committee

CHAIRMAN MURRAY: What is your desire in regard to this report?

(A motion was made, seconded and carried to accept the report of the Committee on Medical Services and Public Relations.)

CHAIRMAN MURRAY: The next report is the report of the Committee on Medico-Legal Affairs, Dr. Washburn, Chairman.

Your Committee on Medico-Legal Affairs, in cooperation with a similar committee representing the Delaware Bar Association, conducted an all day joint meeting of the Medical and Legal professions.

Through the courtesy of Mrs. Alfred I. duPont and Alfred R. Shands, Jr., M.D., a member of our committee and Director of the Alfred I. duPont Institute, the facilities of the Institute, were made available to us as a meeting place.

The meeting, held Sunday, May 23, 1957 was co-chaired by the Hon. Daniel L. Herrmann, Chairman of the Medico-Legal Committee of the Delaware Bar Association, and the undersigned, chairman of your committee.

At the morning session the Hon. Emory H. Niles, Chief Judge, Supreme Bench, Baltimore City, Maryland, delivered an address on "Impartial Medical Testimony". This address is to appear in our State Journal.

At the afternoon session a film "The Medical Witness" was shown, followed by a panel and audience discussion on that subject.

It is our opinion that as a result of the meeting the members of the Medical and Legal professions in Delaware are now in better position to resolve problems which are of mutual interest and concern.

For a variety of reasons the Joint Committee was unsuccessful in its efforts to organize a meeting of our two professions at a point convenient to those who practice in Kent and Sussex counties.

From the report of Haggerty and Haggerty, certified public accountants it may be seen that the sum of $100 was made available by each society, that an account was opened in the name of the Joint Medico-Legal Committee at the Farmers Bank, and that there is a cash balance in that account of $170.97 and assets of $35.15, a total of $206.12.

The Committee wishes to record its deep appreciation of the helpful cooperation of those who assisted in the planning and operation of the program.

The Committee is especially grateful to Mrs. Alfred I. duPont for permitting those in attendance to visit the gardens at her home.

Your Committee recommends that the efforts of the Medical Society of Delaware toward the maintenance of understanding as between us and the Delaware Bar Association be continued actively and vigorously.

VICTOR D. WASHBURN, M.D.
*Chairman*

DR. WASHBURN: I would like to add the recommendation that the Secretary, in behalf of the Medical Society of Delaware, address a letter of appreciation to Mrs. duPont for the courtesies extended—two recommendations, that we continue, and that we acknowledge by letter the courtesies extended by Mrs. duPont.

CHAIRMAN MURRAY: You have heard the recommendations of the Medico-Legal Committee. What is your pleasure?

(A motion was made, seconded and carried accepting the report and recommendations of the Medico-Legal Affairs Committee.)

CHAIRMAN MURRAY: The next report is the Committee on Mental Health. They have had no meeting.

SECRETARY CANNON: That is one of the committees we agreed to abolish.

CHAIRMAN MURRAY: That is right, and appoint a liaison member, as we did in the Heart Disease and Cancer Committees.

The next report is the report of the Committee on Military and Veterans Affairs, Dr. Richards.

## COMMITTEE ON MILITARY AND VETERANS' AFFAIRS

Your Committee on Military and Veterans' Affairs invites attention to the program known as "hometown" care. This is a program whereby former service personnel, with a service-connected disability, may obtain medical care from the private physician on a fee for service basis.

As you may or may not be aware, the Veterans' Administration may arrange for medical care for patients in this group by (1) designating private physicians who are willing to render this service, (2) by direct contract with a State Medical Association where the Association furnishes the Veterans' Administration with a fee schedule and a list of physicians, who will accept the fees listed in full payment for services to veterans with service-connected disability or (3) an "intermediary" plan may be used.

The "intermediary" plan has been in effect since World War II in California, Colorado, Oregon, Washington, South Dakota, Wisconsin, North Carolina, and Michigan. In these states, claims and processing have been handled by Blue Shield.

Your Committee recommends that the Officers and Council of this Society be authorized to investigate and study the methods used elsewhere, as well as to discuss with the officials of Group Hospital Service, Inc., the possibility of entering into a contract as between that Society and Group Hospital Service, Inc., whereby an "intermediary" might be developed and placed in effect in Delaware.

Your Committee recommends that your Officers and the Council be authorized to enter into a contract with Group Hospital Service, Inc., when and if it is determined that an "intermediary" plan would be feasible, as well as advantageous to patient, physicians, and the public.

Because the last fee schedule for the Veterans' Administration was made by this Society in 1948, it is felt that a revision is necessary now. This is being done now and will he given to the Veterans' Administration by November 1. If the "intermediary" plan is adopted, it will closely correspond to "Medicare", so that the fee schedule will be similar since this schedule is recent (1956) and has been acceptable to both parties.

DR. RICHARDS

DR. RICHARDS: I would like to just state that the fee schedule will be worked on and submitted to the group for approval.

CHAIRMAN MURRAY: You have heard the recommendations made by the Military and Veterans Affairs Committee. What is your pleasure?

(A motion was made, seconded and carried accepting the report of the Committee on Military and Veterans Affairs.)

CHAIRMAN MURRAY: The Committee on National Defense. The report will be read by title only. They were not very active this year, but we decided after reading the headlines in the papers they better continue for a while longer.

The Committee on Nominations, Dr. Laggner. That will be held for later.

The Committee on Tuberculosis, Dr. Beatty. As to this report, since it has been simply an abstraction report of the Anti-Tuberculosis Society, we decided to abandon this committee and appoint one member of the Society to act as liaison with the agencies interested in the State on tuberculosis.

The Committee on Vocational Rehabilitation. There are no recommendations in that report, so it will be read by title only.

There is one other committee report which we certainly don't want to miss, and that is, we appointed a committee on revision of the by-laws. The copy of the by-laws is practically out of print and they have not been revised for some time, so rather than have them revised we asked Dr. Washburn to head a committee to look them over and recommend amendments.

To the Officers and Fellows of the Medical Society of Delaware:

Your Committee on Amendments to the By-Laws recommends that Article VI, Section 8, page 25, which now reads:

Nomination of Medical Examiners — as occasion may demand the House of Delegates shall submit the names of ten members of this Society to the Governor of the State recommending to the Governor that he fill vacancies on the Board of Medical Examiners from the names so submitted be amended by deleting the words "as occasion may demand" and substituting therefor the following: "not later than the last day of each calendar year".

As amended, Article VI, Section 8, will read: Nomination of Medical Examiners — not later than the last day of each calendar year, the House of Delegates shall submit the names of ten members of this Society to the governor of the state recommending to the Governor that he fill vacancies on the Board of Examiners from the list of names so submitted.

Your committee recommends that Article XI, Section I, page 35, Standing Committees be amended hy the addition of item (6) Committee on Nominations.

Your committee recommends that Article XI be amended by the addition of a new section to be known as Section II, Nominations — The Committee on nominations consists of three elected members. The Committee shall submit, as set forth in Section 2 of this article, a list of nominees for such officers and elected Committees not otherwise provided for in the By-Laws.

Your committee recommends that the name of the Special Committee now known as the "grievance board and medicare adjudication" be changed to "Committee on Grievance and Medicare Adjudication" and that it shall assume jurisdiction over grievances by the public only when requested to do so hy the Council or hy a component Society through the Council.

Respectfully submitted,  
BRUCE BARNES, M.D.  
ANDREW M. GEHRET, M.D.  
JOSEPH S. MCDANIEL, SR., M.D.  
DR. VICTOR D. WASHBURN, *Chairman*

CHAIRMAN MURRAY: These amendments to the by-laws require the approval of two sessions of the House of Delegates.

SECRETARY CANNON: Do we have to take these up one by one?

DR. J. L. FOX: I have a question on that part of the report that recommends appointment of medical examiners. Does that refer to individual local medical examiners or does it apply to members of the Board, post-mortem examination.

DR. WASHBURN: It is the State Board of Examiners, medical examiners. I am sorry I got it out of context.

CHAIRMAN MURRAY: Any other questions or comments?

(There was no response.)

CHAIRMAN MURRAY: If it is perfectly clear to everyone, I would suggest we vote on them together rather than separately because the time is getting late.

(A motion was made, seconded and carried approving the report and recommendations of the Committee on Revision of the By-Laws.)

CHAIRMAN MURRAY: We will now have the report of our delegate to the American Medical Association, Dr. McGuire.

Mr. President and Members of the House of Delegates:

It is my privilege to report to you as your Delegate to the House of Delegates of the American Medical Association.

Since the Seattle meeting involved many matters that were acted upon and resolved at the

June New York Meeting, I will make this a combined report. The item of greatest interest and most controversy was the new principles of medical ethics. The House approved the long discussed revisions of the principles of medical ethics, originally submitted at the 1956 annual meeting in Chicago. The final version, presented by the Governor on Constitutions and By-laws and then amended by Reference Committee and House Discussion in New York, has been published.

In approving the new principles of Medical Ethics, the House of Delegates also reaffirmed the "Guides for Conduct for Physicians in Relationships with Institutions", adopted in 1951, and requested the Board of Trustees to devise and initiate a campaign to educate both physicians and the general public to the danger inherent in the illegal corporate practice of medicine in its various forms.

Matters of special significance that were discussed and resolved entailed the following:

1. Social Security: Several resolutions were introduced recommending that the American Medical Association change its present policy with respect to compulsory Social Security coverage of physicians. These resolutions recommended A.M.A. endorsement of such coverage. After a stormy hearing before the reference committe, it was voted by the House of Delegates that the present position of the A.M.A. against compulsory coverage be maintained and that an appropriate educational program be developed immediately for the purpose of informing the physicians of the nation of the A.M.A. stand and the reasons for that position.

2. Occupational Health: In addition to the guides for relations with UMWA medical care programs, the House of Delegates adopted the most important statement in the history of occupational medicine: Scope, objectives, and functions of occupational health programs. The reference committee indicated that it states in a positive fashion the proper place of occupational health programs in the practice of medicine, and it clearly charts the pathways of communication between physicians in occupational health programs and physicians in the private practice of medicine.

3. Princeton Panel: The Board of Trustees considered a request from the Princeton Panel, a new organization to promote capitalism, for financial support in its present early stage of development. The object of the Panel is to produce textbooks and other educational material, for use in colleges and high schools, which clearly and effectively present the case for capitalism—a program long considered urgently necessary. You will be hearing more about the work of this group of distinguished researchers and writers. It will merit your support.

4. Amphetamines in Sports: Perhaps the most important news emanating from the meeting was the action of the House of Delegates with reference to the use of amphetamines in sports. The comments by Dr. Berger of New York caused a storm of reaction. By the action of the House, the Board of Trustees has been directed to investigate the frequencies of the indiscriminate use of amphetamine and its derivatives, particularly in relation to athletic programs, and take appropriate action through available channels to prevent such abuse.

5. Heller Report: A management survey of the association was completed by Robert Heller & Associates. The report was submitted to the Board of Trustees and is being sent out to the members of the House of Delegates and state medical society headquarters.

A special committee of the House has been appointed to study the Heller report with special reference to those recommendations that will require House of Delegate action. The House Committee will also confer with the Executive Committee of the Board of Trustees.

6. The Approval of the Resolutions Presented by the Committee on Mental Health for the Admission of Alcoholic Patients to General Hospitals: This resolution suggests that each physician and institution make its services available for the care of this large group of seriously ill patients. Further education on the professional level together with hospital personnel and community resources is strongly recommended.

This experience suggests to me several recommendations to the general membership of the Society.

1. That all members who attend the national meeting spend a portion of their time at the organizational activities of the meeting. A personal view and participation in the proceedings would be most useful. It would eliminate much misinformation, ignorance and prejudice regarding the functions of the national governing body.

2. If free medicine as we enjoy it today is to survive, medical education must remain unrestrained. The American Medical Education Foundation is dedicated to this purpose. I would urge and hope that there would be a substantial numerical and quantitative increase in our Society's contribution this year. The suggestion made by the Dean of the University of Michigan Medical School that every practicing physician contribute a minimum of $100 to this vital activity in my judgment has much merit.

3. The recognition and reiteration that as physicians our primary mission is the care of the sick. We have a fine heritage and historical precedent in that direction. Our forebearers have shown us the way. It is our responsibility to follow with prudence, wisdom and justice, to properly meet our professional and community responsibilities.

Respectfully submitted,
H. Thomas McGuire, M.D.

Chairman Murray: Are there any comments?

From the Floor: Before you sit down, what was that business about the United Mine Workers? I didn't understand that. What did they do?

Dr. McGuire: The United Mine Workers have in many areas of this country panel physicians, they have salaried men, they have men who are full-time orthopedists, like Dr. Flinn, and full-time obstetricians, and full-time specialists, and full-time general practitioners. They have in some instances taken the stand of excluding certain physicians because they have refused to render their services on fees that were provided by the United Mine Workers, in other words, a service provision. Dr. Draper, who is the medical director of the Mine Workers Welfare Fund, has been staunchly (word inaudible) of their current practices. The House said this:

(Dr. McGuire then read from the report.)

In other words, there are men now in active practice, particularly in southeastern Pennsylvania, northwestern West Virginia, southeastern and eastern Kentucky and southeastern Ohio, and other of our coal areas, because of their refusal to accept the United Mine Workers service welfare benefit plans, have been arbitrarily excluded in the rendering of medical care for these patients. The House condemned that action. That is what it means.

Are there any other questions about this report?

(There was no response.)

Dr. McGuire: There is one thing I want to ask. If anybody has a resolution or information that should be conveyed to the House from this Society, I will be pleased to have it in the next two weeks regarding the activities of the Philadelphia meeting which begins December 3. Any individual can, under the constitution of the American Medical Association, introduce any resolution in any form that has to do with the conduct of our affairs. As I said, I used strong words, ignorance, prejudice and bias, or something else, misinformation, as to how this body operates, and the only way we can determine is by getting there. Every resolution will be introduced, referred to the proper committee, and acted upon, and every member has a right to appear before the Resolutions Committee and suggest debate, argue for or against any of the various problems that are presented.

One final word. This A.M.E.F. proposition that is headed by Dr. W. W. Barr, whose fund collecting is now getting quite high, each year makes a special appeal. I think this year Delaware got a word of commendation for the number per proportion of physicians within the State. Since we are by the latest Bureau figures in the treasury, New Castle County, right now the highest per capita income county in the United States, it would seem proper that we increase our contribution in that area that is most dear to us, that is, the practice of medicine.

Chairman Murray: The next item of business is the report of the Representative to the Delaware Academy of Medicine, Dr. Washburn.

To the Officers and Fellows of the Medical Society of Delaware:

Reporting as your representative to the Delaware Academy of Medicine, it may be said that as of September 1, 1957, there were 232 or 56% of the members of the Medical Society of Delaware who are also members of the Academy. In addition, there were 29 members of the Delaware State Dental Society who are members of the Academy — the total membership of the Academy being 261. In addition, the Academy has an associate membership of 145.

We have in the Academy library, 1900 volumes, of these, 145 were added during the past year and the current periodical list includes 164 titles. The library facilities are utilized by the technical staffs of industrial firms and by the general public.

The use of the Academy building as a meeting place has increased. Local, State and Regional medical and dental meetings have been held there as have meetings by groups and agencies engaged in public health activities.

The Academy Health Forums have been conducted with the important and valued cooperation of Group Hospital Service, Inc., The News-Journal newspapers and the Welfare Council of Delaware, Inc. The attendance at these forums which were held in public school buildings, has varied from 200 to 900.

The purpose of these forums has been to present to the public, authoritative and useful information on medical subjects. We are grateful to those members of the medical profession who have so graciously and freely given of their time and of their knowledge in order that our programs in the public interest could be presented.

The Academy has cooperated with religious leaders in their efforts to fulfill their obligations to the members of their congregations.

The joint meeting of the Delaware Bar Association and Medical Society of Delaware was held at the Alfred I. duPont Institute on May 12, 1957. There were in attendance approximately 125 lawyers and physicians. The Academy was most happy to participate in the planning and conduct of that joint meeting.

The Executive Committee of the Academy has had plans drawn for the construction of an auditorium and office space for the use of the medical and dental societies of Delaware and other organizations and agencies in the health field.

These plans have been submitted to the Board of Directors. the legal board of control of the Academy. It was the decision of that body that the plans be referred back to the Executive Committee of the Academy for further study of the possibility of a less extensive program, or at least until a sound financial basis has been established.

In keeping with the recommendations of our Board of Directors, the Academy will canvass the medical profession as to how much money will be contributed by them toward the construction of additions to the Academy.

A committee has been appointed with authority to consult with a committee of the Medical Society of Delaware for the purpose of discussing such plans as are of mutual concern.

New plans have been drawn for the construction of an addition to the present Academy Auditorium and space sufficient to provide offices for the Medical Society of Delaware, as well as the Editor of the Journal of our Society. It is contemplated that the foundations and the structure be so designed as to permit enlargement of the present cellar and when desired, a second floor be added to provide additional space for library facilities.

It is the considered opinion of the Academy Executive Committee that it is important and desirable that the offices of the Medical Society of Delaware be located in the Academy.

It is believed that with substantial financial support of the medical profession, the Academy Board of Directors (lay board) will approve of the plans which will be submitted to them.

It is with this in view that it is proposed that modern movable office cubicles be set up on one side of the libray on the second floor of the Academy. This would provide at least two additional offices for the use of our Society, as promptly as may be convenient and until completion of the new construction described above.

Victor D. Washburn

Dr. Washburn: I may say that I have discovered that I have failed to convey clearly information which I intended to, and it is this: Under no circumstances is it the intention of the Academy Board to proceed with the construction of new buildings or the installation of equipment until it is clear that we not only are on a sound basis financially but are doing so with the approval of our Board of Directors. That states it correctly.

Thank you very much, Mr. President.

Chairman Murray: Thank you. I am sure this brings home to all of us our duty to dig down in our pockets and give a little bit to the Delaware Academy of Medicine.

Now the report of the Committee on Nominations, Dr. Laggner.

### NOMINATIONS

Vice-President........R. R. Layton, Dover, Del.
Secretary......Norman L. Cannon, Wilmington
Treasurer .......... Charles Levy, Wilmington
Delegate to A.M.A...H. T. McGuire, New Castle
Alternate Delegate to A.M.A.
L. M. Dobson, Milford
Representative to Delaware Academy of Medicine........V. D. Washburn, Wilmington

### STANDING COMMITTEES

**SCIENTIFIC WORK**
N. L. Cannon, Wilmington
J. R. Elliott, Laurel
J. F. Flanders, Wilmington

**MEDICAL EDUCATION**
L. B. Flinn, Wilmington
G. B. Heckler, Wilmington
L. L. Fitchett, Milford

**PUBLICATIONS**
A. H. Clagett, Jr., Wilmington
M. A. Tarumianz, Farnhurst
N. L. Cannon, Wilmington

**PUBLIC LAWS**
W. O. LaMotte, Jr., Wilmington
J. R. Fox, Dover
D. J. Preston, Wilmington
J. S. McDaniel, Sr., Dover
James Beebe, Jr., Lewes

**BUDGET**
Charles Levy, Wilmington
T. H. Pennock, Wilmington
M. A. Tarumianz, Farnhurst
W. C. Pritchard, Jr., Smyrna
Felix Mick, Milford

**NOMINEES TO THE BOARD OF MEDICAL EXAMINERS**
W. F. Preston, Wilmington
P. A. Shaw, Wilmington
A. H. Clagett, Wilmington
S. G. Elbert, Jr., Wilmington
M. I. Handy, Wilmington
L. P. Lang, Wilmington
C. L. Munson, Wilmington
S. W. Rennie, Wilmington
F. R. Everett, Dover
E. L. Stambaugh, Lewes

CHAIRMAN MURRAY: Are there any additional nominations from the floor?

(There was no response.)

CHAIRMAN MURRAY: Do I hear a motion that these nominations be accepted by the House of Delegates?

(A motion was made, seconded and carried to accept the report of the Committee on Nominations.)

CHAIRMAN MURRAY: These gentlemen are now duly elected.

Last year apparently there was a committee appointed to consider increasing the State Society dues, to include a contribution to the American Medical Education Foundation. May we have a report from that committee?

EXECUTIVE SECRETARY MORRIS: Dr. Poole is chairman of the committee. He has been out of town most of the week and has not had a chance to submit a written report. However, he has authorized me to tell you what the report will be.

Shortly after the appointment of the committee, we got in touch with the A.M.E.F. from Chicago and got an answer from John W. Hedback, Executive Secretary of the A.M.E.F. I would like to read one pertinent paragraph:

"The substantial results by voluntary methods which have been achieved in your State makes me hesitate to suggest that you adopt the dues increase plan. Much as I have encouraged this plan in most States, I would like to point with pride to Delaware for your voluntary methods and good understanding of the program".

In consideration of that Dr. Poole has asked me to report for the committee that they recommend against a dues increase for the A.M.E.F.

CHAIRMAN MURRAY: You have heard the report of the committee on increasing our dues in order to give more money to the American Medical Education Foundation. What is your pleasure in regard to that report?

(A motion was made, seconded and carried accepting the report and recommendation of the committee to increase the State Society dues.)

CHAIRMAN MURRAY: We now have some items of new business that we want to bring before you.

One is that the Medicare contract expires on April 30, and we would like the permission of the Council, permission of the delegates, to give authority to re-negotiate that contract or not renegotiate it, whichever you see fit.

Also there is one amendment which will come up to that Medicare contract providing for fees for repair of lacerations. At the present time that fee comes under their classification of plastic surgery and does not quite fit the facts. The fees will have to be changed a bit.

What is your pleasure in regard to the Medicare contract? Do you wish the Council to renew that contract?

(A motion was made, seconded and carried to renew the Medicare contract.)

CHAIRMAN MURRAY: We now have the Treasurer's recommendation that the fiscal year of the Society be changed from — what was the date?

DR. LEVY: From December 31 to July 31.

CHAIRMAN MURRAY: From December 31 to July 31. That takes an amendment to the bylaws.

FROM THE FLOOR: Didn't you say August 31?

DR. LEVY: Well, that was the original thought, and then we decided, I think Larry and I and the group decided that we change it to July 31.

MR. MORRIS: The annual meeting comes in September every fourth year. That gives a month's time to close the books and get the audit.

(A motion was made to amend the by-laws to end the fiscal year of the Society on July 31.)

CHAIRMAN MURRAY: It has been moved that the by-laws be changed so that the fiscal year of the Society ends July 31. Is that seconded?

(The motion was seconded.)

(The motion was carried.)

CHAIRMAN MURRAY: Last year at Rehoboth the Society awarded the Certificate of Merit to Dr. Gehrmann, retired medical director of the Du Pont Company, and this year we are going to award another Certificate of Merit. We have a lot of people in the Society whose years and services and achievements are a great credit to them and to all of us, and we would like to see the by-laws changed so that there would be a provision for an annual Certificate of Merit to an individual to be chosen by the Council each year.

Is there any discussion on that?

(A motion was made, seconded and carried to award an annual Certificate of Merit.)

**Chairman Murray**: Another matter is that we have four thousand and I don't know how many hundred dollars in a Medical Defense fund. The by-laws provide for that fund, provide for taking a little bit out of the dues of each member each year to add to that fund. The by-laws state that that shall be used to defend any member who is unjustly accused. In my memory it has not been used. The Council feels that the responsibility is on each individual doctor to carry malpractice insurance in these days. We would like to have that part of the by-laws stricken out so that that money would be released.

We have not any particular plans to use the money. One thought is that with the offices of the Society moving out to the Academy, as we hope they will in the near future, the not too distant future, that that could be used as sort of a capital improvements fund to buy office furniture, not be used for current running expenses of the Society but be held for that, and perhaps $1,000 of that be set aside for attorneys' fees, because we are going to make a great deal of use of our attorney, Mr. Anderson, in working on these bills and in other advisory capacities that we call on him from time to time. What his fees will be I don't know. He has not sent us any bills.

**From the Floor**: How much money is in there, Mr. Chairman?

**Mr. Morris**: $4,805.

**Chairman Murray**: We could think of no good reason for continuing that Medical Defense fund.

**Dr. Hassler**: Suppose someone sued the whole Society, who is going to pay for that?

**Chairman Murray**: Everybody is going to have to dig down in their pockets.

**Dr. Washburn**: I think we are incorporated. I don't think we are liable personally under those circumstances.

**Secretary Cannon**: The $4,000 is not going to pay any liability damage, merely to provide a lawyer. $1,000 would be adequate to keep in reserve.

**Dr. Hassler**: We maintain a lawyer anyway.

**Chairman Murray**: If no one can think of any good reason for continuing this fund, will someone make a motion that the by-laws be changed so that this money can be released to the office of the Society?

(A motion was made, seconded and carried releasing the funds from the Medical Defense fund to the Office of the Society.)

**Chairman Murray**: We greatly appreciate the services of those physicians who volunteered their services in the free Salk Vaccine clinics. They did a fine thing and they did us all a lot of good. I would like to hear a resolution of appreciation for those people, and you might also include those doctors who volunteered for such service but whose services were not needed. There were many who volunteered and were not used.

**Dr. Hassler**: Could you write them a letter stating that?

**Chairman Murray**: That is the idea. We wanted a formal resolution of the Society for that. We also had great cooperation from the newspapers, radio and television, and also I think we might include in our list of letters of appreciation one to John Leach. He was really very helpful to us.

Do I hear such a motion?

(A motion was made, seconded and carried to express the thanks of the Society to physicians assisting in the Salk Vaccine clinics.)

**Chairman Murray**: Is there any other new business?

**Dr. S. W. Casscells**: Reference was made to the coming solicitation for funds for the American Medical Association for the current year at the time of the medical meeting, the State meeting. It seems a very unrealistic time to solicit such funds because most medical schools solicit their alumni early in the year, and this encourages the doctors to contribute directly to their medical schools without channeling the money through the American Medical Education Fund, and in so doing the publicity value of their funds is lost; the A.M.E.F. never has a record of such funds which are sent direct to the medical schools.

This has been pointed out time and time again by the committee, and I should think we would be better off having this solicitation early. Perhaps we should make a recommendation to the committee to attempt this solicitation early. I was looking for the solicitation this year. We have the card handy, we have the address. It is much simpler to write your check. But if you wait until the end of the year you are just a year behind. I think we will lose out, the medical profession will, because if we don't have a good showing on the rolls of the A.M.E.F., it will be a black mark against us, and in several instances industry has withheld funds because the doctors apparently have been so lax in contributing to their own cause.

I would like to see some recommendation made to the committee that handles this solicitation to do it early in the year.

**Dr. O. N. Stern**: Isn't it true that this year the medical schools are supposedly going to notify the American Board of Education that money has come from individuals within the State? That was the understanding that I had at our reunion at school when that was brought up, and at that time they were re-solicited—it was our twenty-fifth reunion—for extra funds. That point has been brought up by Dr. Pepper, who was very interested in this, and he said that all these funds that were given were going to be sent into the A.M.E.F. I was under the impression if you gave directions, it was recorded to the State, or the State was given credit for it.

**Dr. Richards**: I was on this committee early when it first started, and that was advocated at that time and they said that the Medical Educaion Foundation would be notified if we sent it directly to the school. But that was very poorly done. Most of the time they did not know where the money came from, and they did not bother to notify the American Medical Education Fund.

**Dr. Stern**: It was dependent upon the classes themselves to notify them, as I understand it, not the school, the chairman of the class. That is what I understand. I may be wrong.

**Dr. Richards**: It worked the other way. It did not work out. We felt in the three or four years I worked on it that it is much better to give to the A.M.E.F. and not directly to your medical school. The medical schools are notified because it is sent to them with your name and class, and then you receive a note from them thanking you for it.

**Dr. Casscells**: That has been the position of the A.M.E.F. all along, that it should be sent directly to them.

**Chairman Murray**: Well, as I understand it, Dr. Casscells, are you offering a resolution that the House of Delegates urge the A.M.E.F. Committee to solicit their funds earlier?

DR. CASSCELLS: Early in the year, yes.

CHAIRMAN MURRAY: Is there a second?

(The motion was seconded.)

DR. CASSCELLS: It might catch the stragglers at the meeting. The meetings are not well enough attended to be of any great value. I think it is wise to mention it and to bring it to their attention and pick up the stragglers, but I don't think we should have our many solicitations at the time of the State meeting. It is too late.

CHAIRMAN MURRAY: Is there any discussion on the motion?

(There was no response.)

CHAIRMAN MURRAY: All in favor say "aye".

(The motion was carried.)

CHAIRMAN MURRAY: Now, unfortunately we have lost some of our valued members by death during the past year. They are as follows:

(Chairman Murray then read the list of deceased members.)

CHAIRMAN MURRAY: Will the delegates rise and stand in silence for one moment in honor of these departed members.

(The House of Delegates then stood in a moment of silence.)

CHAIRMAN MURRAY: The next item of business is the choice of a meeting place for our next annual meeting. Before you do that, I would like to orate a few minutes.

I have advocated here and there throughout the State that the place of the annual meeting be changed permanently to Wilmington. I have no way of knowing in general how our downstate friends have reacted to that. I know that one or two have reacted a little antagonistically. However, my thought is this, that the meetings in Wilmington have better facilities. I think that when this meeting is over you will agree that there in the Scottish Rite Cathedral we have the finest physical facilities that we have ever had. Whether we put on a program that will be popular with you remains to be seen. At least we have tried.

Other State societies, Pennsylvania, for instance, alternates between Pittsburgh and Philadelphia. New Jersey meets annually in Atlantic City. The selection of their meeting place seems to depend entirely on the location which has the best facilities for putting on a meeting.

All of you, I know, and that includes myself, have been somewhat dissatisfied with the annual scientific meetings. I think that is obvious from the fact that the attendance has frequently been quite poor. Even the suggestion has been made to me that the scientific meeting should be abolished and that the State Society should just be an organization which meets for a social gathering and to transact the necessary business of the Society. That I am very much opposed to.

A matter of concern to all of us is the disunity that is growing up in our medical organization. I don't mean that there are any hard feelings between any group or individuals—that isn't so, at least not to my knowledge—but we have so many little organizations growing up, like the psychiatrists, and perhaps the pathologists, the internists, the Academy of General Practice, and so on, all of whom have their special interest and put on their own special meetings and do not gather together under one roof once a year to meet with all other physicians.

The answer to that seems to me that we are now big enough to have sectional meetings, in which perhaps the President of each of these groups that we have throughout the city and state could take a part of the program and put on during part of one day a program that would appeal to that little group—perhaps have sectional meetings for one day and do our best to have discussion of general subjects the following day which could gather us all together.

That is the way I have been talking up and down the State, and of course the idea is that we have grown big enough so that the meetings should be in the big city of Wilmington and in a big hall which we have available this year.

Now, I just throw those ideas out. You can do as you please about it, but now is the time to select the meeting place for the Medical Society of Delaware for 1958.

DR. J. R. FOX: Mr. President, I agree with your point of view that you do have good facilities up here in Wilmington; I just want to say I had the responsibility of chairmaning the committee to make arrangements for the last State convention that was held in Dover. My feeling is that the entire organization of the annual meeting can be much better implemented here in Wilmington where you have a larger number of physicians, an opportunity to get a better scientific meeting together, with better attendance for the speakers who are asked to come in possibly from out of state, and I feel the tone of the meeting would be considerably improved because of the larger number of physicians in the immediate area.

I also feel that the State is small enough so that any of those from downstate who wish to attend the State convention with a minimum of travel time can get up here to Wilmington with reasonable scheduling as far as hours are concerned can attend all the meetings and still return home the same day if they wish.

DR. MCGUIRE: I would just like to add a word of agreement to the doctor from Dover. I recall being at the meeting two years ago in Dover at which Dr. Appel, who was then President of the American Psychiatric Association, who was talking on automobile driving, not an esoteric subject, and at 3 o'clock in the afternoon there were four people there and one police officer. One of them, I think the police officer, drove him down.

I think that signifies the point that is trying to be made, and it would seem to me that your preliminary remarks here with respect to where the next meeting place should be held would indicate that the physical facilities, the clinical material, the number of people to act on a scientific committee, the attendance, the participation of the very important element of the females, would suggest to me the resolution that the next meeting be held in Wilmington, and I so resolve.

DR. HASSLER: I was just going to suggest the idea, why don't you ask those men who are right here today, the delegates from downstate, what they think about it.

CHAIRMAN MURRAY: I would like very much to hear from Dr. John Baker, President-elect next year from Kent County, Jim Beebe from Sussex, and others.

DR. JOHN B. BAKER: I have not had time to really think this situation over. Just last night the manager in charge of the facilities at the new Dover Hotel called me and asked me about a meeting in Dover next year. Not having seen the hotel and not knowing what we might do, I didn't give her any specific answers, and I referred her to you.

Not having talked to the men in the Society about the movement of the meeting, I would not like to say offhand as their representative whether to move it to Wilmington or not. However, I do think that it would be a good move because we do have the facilities here and we do not have them downstate, unless this new hotel meets it.

We have Dr. Fox from Kent County and I think Dr. Laggner—I think they are the only two here from Kent, and if we could probably talk to a couple of the other lads, I think from my point of view and I think from Dr. Fox' point of view it would be all right to have it up here in Wilmington.

I mentioned it to Dr. Dobson and Dr. James on the way up, and they sort of confirmed the idea that it would be a good thing to have it up here. I would like to hear from the gentlemen from Sussex.

Dr. James Beebe, Jr.: I knew this was coming up, and for that reason I spoke to a number of the men around eastern Sussex. I didn't get over to western Sussex. Maybe Dr. Fox can say something about that. But we agree with everything you say, that certainly you do have better facilities, with a couple of exceptions.

I think this: Although you have a big registration, your attendance at the meetings is oftentimes less than they have downstate because they will come in and register here and then leave.

Secondly, although the income is greater, the expenses downstate for the most part are a great deal cheaper, too.

Thirdly, we do like the meetings, we like the interest and the fact that you are able to get better speakers, for the most part, with the exception, I will say, of the one when Dr. Stambaugh was President—I don't think that there has been a better program arranged as far as big men, but the attendance was rather poor; I will admit that.

Most of the men felt this, that there would certainly be a lack of interest in Sussex County if the meetings were held in Wilmington all the time. That was the big objection. It is always the same problem. You have 300 and some members and we have 50-some, but we felt that the main thing would be the lack of interest in the men from Sussex.

Dr. Marvel: I feel the same as the other members who have spoken. I feel that the facilities are undoubtedly better up here. There is no question about that. Also I feel that if this move is made that many of our men will lose a great deal of interest.

I have discussed this matter since I was speaking with you and you told me about it a few weeks ago. I would suggest an alternate plan, that we meet occasionally downstate, maybe three meetings up in Wilmington and one in Dover and maybe two or three more in Wilmington and then one in Rehoboth. I think that there are many other things to a medical meeting besides the scientific programs and the attendance at the scientific programs. I think we have a spirit of fellowship that we frequently get at a meeting such as some of the ones we have had at Rehoboth. I thought it was very good last year when it was there.

I think there is a great deal to be gained by meeting down there occasionally because we have hospitals down there, we have medical men who would feel entirely left out of it.

I will admit at the present that there is a feeling downstate today that Wilmington runs everything and that Sussex County, and maybe Kent, have very little voice in the affairs of the State Medical Society. I think that is mainly our fault. But at least it is there, and I think you should know about it.

Chairman Murray: Could we not settle this temporarily, leave it unsettled. We will have to have a meeting of the House of Delegates immediately after the election for President next Friday for a few moments to take the second vote on these amendments to the by-laws which we have recommended or given first approval of today. Would it be feasible to postpone this decision as to the meeting place for next year until the delegates from Kent and Sussex Counties have had more opportunity to discuss it with their fellow members? To change the meeting place I think a two-thirds vote of the House of Delegates is necessary—the meeting place is selected by a two-thirds vote of the House of Delegates, that is, a two-thirds vote could change the meeting place.

I personally would feel very badly if New Castle County, solely because they have the votes, would make this change if Kent and Sussex were unwilling to have it. I of course, as you know, strongly hoped that they would want it changed.

Dr. James Beebe, Jr.: Mr. President, I would suggest if any change be made, would it be possible to make it on a year to year basis? In that way I don't think the men would feel entirely left out. As Dr. Marvel pointed out, most of them felt that probably more meetings should be held in Wilmington than there are now, but if some arrangement could be made where it could be on a year to year basis, I think that would be better.

Chairman Murray: The problem before us now is the selection of a meeting place for next year, 1958.

Dr. Szatkowski: Try it here one more year and if you don't like it, go back again.

Dr. Dobson: Since you mentioned that, I talked to several members, and there is a difference of opinion in Kent and Sussex County on this. Some think it should be in Wilmington all the time and others think it should alternate. I thought possibly the annual meeting might be held in Wilmington but have interim scientific sessions in Kent or Sussex County, as put on by our Educational Committee last year, have those occasionally in Kent and Sussex Counties, and I think that would be a way of stimulating and keeping your interests. My personal feeling, purely personal—I can't speak for any group— is that it should be in Wilmington every year.

Dr. Laggner: I personally agree with Dr. Dobson. This was discussed at one of our recent meetings, and there is a difference of opinion in Kent. Some of them feel that Dover should have at least one more chance at a meeting since they have different facilities with the new hotel. I myself feel it should be held in Wilmington. But as I say, we do have a difference of opinion as Dr. Dobson said they had in Sussex.

Dr. Baker: Mr. President, suppose we canvass the men in Kent, as long as the meeting was supposed to go downstate again. They do have this new hotel, and suppose we canvass the Kent men and see what their feeling is toward movement. As I said, I have not had an opportunity to canvass them. Personally I feel perhaps it would be better in Wilmington. Then, as you say, at the House of Delegates meeting after the elections we can arrive at a decision as to where this meeting should be held.

CHAIRMAN MURRAY: You move then that this decision as to our meeting place next year be postponed until the meeting of the House of Delegates next Friday?

DR. BAKER: Yes.

DR. MCGUIRE: Mr. President, I withdraw my motion.

CHAIRMAN MURRAY: I am sorry, I didn't know you made a motion.

DR. MCGUIRE: I guess it was innocuous anyway.

(The motion of Dr. Baker was seconded.)

CHAIRMAN MURRAY: All in favor say "aye".

(The motion was carried.)

CHAIRMAN MURRAY: Is there any further business to come before the Society?

(There was no response.)

(A motion was made, seconded and carried to adjourn the meeting of the House of Delegates, and at 6:20 o'clock P.M., the meeting was adjourned.)

DR. BOINES: Mr. President and delegates, fellow doctors:

Last Sunday our Executive Secretary gave us a very good discussion of the wonderful public relations which were achieved by our State Medical Society assisting the Public Health Service in helping with the polio vaccine inoculations and also the flu vaccine program. However, he did not say that our Society also went to great lengths in seeing about the establishment of a Virus Diagnostic Laboratory in Delaware in order to get rapid viral diagnosis on patients within two or three days, which tests are now available.

The Society then requested Dr. Cannon, the Secretary, to write letters to the various state hospitals and ask their opinion as to the desirability of the Viral Laboratory within the State of Delaware.

In favor of establishing such a Viral Diagnostic Laboratory in Delaware were the Medical Staff and Director of the Wilmington General Hospital, the Research Committee of the St. Francis Hospital, the Delaware Academy of General Practice, the Sussex County Medical Society, and the Beebe Hospital.

Dr. A. R. Shands said "My personal opinion is that we should have a virology laboratory in the state".

The Emily P. Bissell Sanatorium sent us a lengthy letter, which says in part: "It is very important in diagnosis. First, patients sent in as T.B. cases are really viral pneumonia, acute and chronic. Second, the M.D. has to wait long periods for the problem of T.B. to be evaluated. Thirdly, the type of endemic virus can be associated with typical x-ray picture, thus helping in a public health way. Fourth, veterinarians and chicken breeders should be interested in early diagnosis of viral diseases."

The eighth hospital to want the Viral Diagnostic Laboratory was the Kent General Hospital.

Also the Virus Diagnostic Laboratory of Philadelphia sent a very encouraging letter signed by Dr. Werner Henle, the virologist, who said: "Rapid virus diagnostic work is needed today. We would be glad to assist Delaware in its efforts". They have been, up to the present time, very kind in doing a great deal of the Delaware virology work through the arrangements and efforts made in the past five years by the Delaware and Memorial Hospitals, mostly through the efforts of my friend, Dr. Flinn, and Dr. Washburn. Money was contributed by the Delaware and Memorial Hospitals, not by the public.

Then the tenth institution was the State Board of Health. Dr. Hudson is very much in favor of having virus facilities for rapid diagnosis of viral infection which would help in diagnosis and treatment.

The eleventh is Dr. James Kakavas, Bacteriologist at the University of Delaware, who thinks that a virus laboratory is essential in daily medical diagnosis of viral diseases and in differential diagnosis of patients who appear to have viral infections.

Now, on the opposite side, letters were received stating that they were opposed to the establishment of such a laboratory in Delaware but who approve viral diagnostic facilities.

First was a letter from the Memorial Hospital which stated that at the present time they send all their work to Philadelphia, the Children's Laboratory.

Then the Delaware Hospital. We received quite a lengthy letter from Mr. Griffith who said the Delaware Hospital has been contributing in the past five years money and also they have been contributing to the building fund for virus laboratory work for the entire state. He states that "Such a laboratory in Delaware would be a waste of money. The State of Delaware would invest its money wisely and well if Delaware could reimburse the Philadelphia laboratory for the service that the State already receives". He also states that under certain circumstances reports which are obtained from Philadelphia are delayed. Our experience is that we can send as many specimens, if not more than any other hospital. We would receive the report back two or three months later. And then we do not have the facilities of having a diagnosis made within two or three days. Of course, in the first place, the delay is due to the physical impossibility of sending specimens to Philadelphia the same hour or the same day. In the second place, the hospital up there has a great deal to do, and they do not have the time to take our specimens and service them the first day they come in.

Now, as I said before, through the efforts of Dr. Flinn—who also is opposed in his letter to a Delaware Virology Laboratory because he says, "The Volume of work in this field would not justify the taxpayer's expense".

Now, we have confidential information to tell you that philanthropists in the State are willing to put up the expense for the virus laboratory—it will not cost the taxpayers any money—and that eventually the laboratory will be made self-sustaining by charging for the tests.

Another point was made by Dr. Flinn that there isn't enough work. However, if the Virus Laboratory were available and swabs were taken from the throat, nose, rectum, and so forth, for tests and were processed at once, the doctors would supply more work.

Besides that, the veterinarians who would have their problems with viruses in animals, and the chicken breeders down state who have problems with New Castle viruses and bronchitis viruses, and so forth, would also use this laboratory.

The latest article on this—which I am not going to read—is entitled, "Diagnostic Virus Laboratory for Clinical Work", published in the AMA Journal February 2, 1957, by Drs. John P. Utz, Robert H. Parrott, and Julius A. Kasel, who started a Virus Laboratory for clinical work with their pediatric service to see whether it is practical for a hospital to have virus laboratory facilities, and the article states in part, "In fact, we envision a day when a virus diagnostic laboratory will be as integral a part of a clinical pathology department as is the bacteriology laboratory now". And the reasons are:

1. Careful diagnosis of febrile disease.
2. Better care of patients as a result — rejection of chemotherapy or proper selection.
3. Can differentiate APC viruses from upper respiratory disease.
4. Diagnose the cause of fever in patients with acute leukemia. Also diagnose patients with septic meningitis.

Therefore, Mr. President, I would like to make a motion for the delegates to instruct the President to appoint a committee to study the feasibility of establishing a Virus Diagnostic Laboratory in Delaware for the benefit of all physicians, veterinarians and chicken breeders in the State. We naturally do not plan to have this as a diagnostic laboratory to compete with Philadelphia because we can not build such a laboratory as they have in Philadelphia. As Dr. Henle says, if any research problems come up, we will naturally have to go to Philadelphia for them. But for the every-day acute diagnosis of patients that we have now and who die before we even find out what they have, we will be benefited, and I think we will benefit greatly.

Thank you very much.

Dr. Flinn: If the motion is in order, I would like to second it.

Chairman Murray: I think the motion is in order. The proper thing would have been to have brought it up before the House of Delegates. However, I see no constitutional objection to it being voted on here. Is there any discussion on the motion which has been moved and seconded?

(There was no response.)

Chairman Murray: All those in favor please say "aye".

(The motion was carried.)

Chairman Murray: The next matter of business is the election of a President-Elect. Before we proceed with that I would like to announce there will be a meeting of the House of Delegates immediately after that. So those men who are delegates please remain for a short meeting.

Nominations are now open for President-Elect of the Society.

Dr. Flinn: It gives me particular pleasure to place in nomination for President-Elect of the Medical Society of Delaware a man who I know is qualified, whom I have known for many years, and who is a personal friend. It gives me particular pleasure because of my genuine concern heretofore over the method of the election of President-Elect of this Society.

Some of you may recall several years ago, in my annual Presidential report to the House of Delegates, I pointed out this what seems to me discrepancy in our by-laws. The by-laws state that the House of Delegates, at its annual meeting, shall elect all the elective officers and officers except the President-Elect. It also says that this general meeting, at this particular point on the program, all the members of the Society present and voting, will elect the President-Elect. But no one has an idea who it is going to be.

I don't know how I got to be President. I nominated one previous President because somebody stopped me on the street corner about a day or two before and said, "What do you think about so-and-so?" I said, "Fine. Would you let me nominate him?

I remember one meeting where no one, either the nominee or the nominator, knew who the candidate was going to be 12 minutes before the election.

The by-laws do say that the annual meeting is to be held alternately in New Castle County, then every four years in Sussex and every four years in Kent, but it says nothing about who the President shall be. However, it has been a rather gentleman's agreement that the President will be from the county in which the meeting will be held. That can be changed by two-thirds vote of the House of Delegates.

Last month I was away, and at the New Castle County Society meeting, the regular meeting, I have been informed that the Society officially went on record as designating a certain individual to be placed in nomination before you today.

So that it is therefore with particular pleasure that I now nominate for President-Elect of this Society Dr. Alfred Shands, Director of the Alfred I. duPont Institute, who is very active in the field of orthopedics, medical education, local, national and international, also past President of the New Castle County Medical Society, currently President of the Delaware Academy of Medicine.

I feel that this office is becoming more important than ever before with the growth and responsibilities in the State Society which I think is taking a more active and has a more vital interest in what amounts to the details of practice of everyone of us than perhaps the rank and file of the organization now appreciates.

I nominate Dr. Shands. (Applause)

Chairman Murray: Is there a second to the nomination?

Dr. Boines: I second it.

Dr. Levy: May I say a word, Mr. Chairman?

Chairman Murray: Yes.

Dr. Levy: Mr. Chairman and members:

I would like to second the nomination of Dr. Shands for the post of President-Elect of the Medical Society of Delaware. We in Delaware have long been proud of Dr. Shands' accomplishments, of his interests and zeal, of his many contributions to medicine, and therefore it is a distinct, you might say, privilege for our little state to have a man of national stature to be our next President, that is, next President of the Medical Society of Delaware.

I second the nomination of Dr. Alfred R. Shands, Jr., the Director of the Alfred I. duPont Institute for President-Elect.

Chairman Murray: Are there any other nominations?

Dr. Mayerberg: I move the nominations be closed.

(The motion was seconded.)

Chairman Murray: All in favor say "Aye".

(The motion was carried.)

Chairman Murray: Dr. Shands is the next President-Elect of the Medical Society of Delaware. Dr. Shands unfortunately is in Texas today and unable to be here.

That concludes the business of the Society as a whole. The delegates, as I said, will please remain.

DR. MCGUIRE: Mr. President, may I have a word?

CHAIRMAN MURRAY: Yes.

DR. MCGUIRE: Mr. President, and members:

I think it would be altogether discourteous and inappropriate for us to close this meeting without a remark of gratitude for the retiring President. The opportunity will not avail itself tonight, it seems to me, and I just want to take this moment to say two things. One is that our retiring president has set an extremely difficult precedent for these gentlemen who will follow him in dedication, in interest and in intelligence and devotion to this office. I have had considerable personal experience with him in the Society's business, and I think we certainly are obliged for his interest and recognition of his duty. He has suggested some changes that are all to the good, and I would like to ask for a rising vote of thanks for our retiring President, Dr. Roger Murray.

(Rising vote of applause.)

DR. MCGUIRE: I would like further to supplement that with a word of recognition and commendation to our Executive Secretary, and I think Dr. Flinn, who has just spoke, together with some others, was the leader in getting that resolution through. It was a little unpopular because it cost money, but our Executive Secretary is doing a distinguished job, and we are indebted to him, and I am sure those who follow in Dr. Murray's office will cooperate to the fullest with Mr. Lawrence Morris. Thank you. (Applause)

CHAIRMAN MURRAY: Thank you for those kind words.

We will now proceed to the House of Delegates meeting.

(The General Session was then concluded.)

## HOUSE OF DELEGATES MEETING

(The Meeting was called to order by President Murray.)

CHAIRMAN MURRAY: The Secretary will call the roll of the delegates.

(A count was taken of the delegates present.)

CHAIRMAN MURRAY: We have 20 people here, so we have a quorum and can dispense with the roll call.

DR. WASHBURN: 15 is the number necessary.

CHAIRMAN MURRAY: I declare a quorum present and the meeting of the House of Delegates will please come to order.

The first item of business is the recommendation for changes in the by-laws. It was agreeable with the delegates that we read those all at once and act on them altogether for the sake of saving a little time. They were acted on and approved at the session of the House of Delegates last Sunday, and this meeting today is required to make them legal. They have to be passed by two separate meetings of the House of Delegates. Will the Secretary please read the proposed amendments.

DR. CANNON: I don't have the details of Dr. Washburn's report with the chapter and verse of the by-laws that are being changed. I notice a frown on Dr. Washburn's face.

The first amendment has to do with the title of the committee now known as Grievance Committee and Medicare, to be changed by title to Committee on Grievances and Medicare Adjudication.

The second change has to do with nominees to the Board of Medical Examiners to reach the Governor by December 31 of each year.

The third has to do with the State Society's Grievance Board jurisdiction which shall be only first at the request of the County Grievance Board or at the request of the Council or upon request of the complainant on appeal from the County Grievance Board.

These were the three amendments agreed upon and voted favorably at the last meeting of the House of Delegates on the previous Sunday.

CHAIRMAN MURRAY: As stated, these amendments had their first passage at the House of Delegates last Sunday. What is your pleasure regarding these amendments today?

DR. FLINN: Mr. President, I move the amendments be made as stated.

(The motion was seconded.)

CHAIRMAN MURRAY: A motion has been made and seconded. Is there any discussion?

(There was no response.)

CHAIRMAN MURRAY: All in favor of these say "Aye".

(The motion was carried.)

CHAIRMAN MURRAY: The amendments are now legal.

DR. CANNON: It was voted last Sunday to amend the by-laws to permit a single audit of the books of the State Society on July 31 rather than a nine-month audit prior to the meeting and then a subsequent audit on December 31. This change was approved on last reading by the House of Delegates, and it is requested that it be approved at today's meeting for a single audit of the books of the State Society July 31 annually.

(A motion was made and seconded in favor of the above change.)

CHAIRMAN MURRAY: All in favor say "Aye".

(The motion was carried.)

CHAIRMAN MURRAY: It is passed.

DR. CANNON: The next change in the by-laws is to incorporate in the by-laws as an annual event the awarding of a certificate of merit to a member of the Society for service to the public at large. It was recommended by the House of Delegates that the by-laws be changed to incorporate such an award to be given by this Society each year.

CHAIRMAN MURRAY: You have heard the proposed amendment. What is your pleasure?

DR. BOINES: I move that it be adopted.

(The motion was seconded.)

CHAIRMAN MURRAY: A motion has been made and seconded. Is there any discussion?

DR. WASHBURN: May I ask a question. Is that permissive or must it be done? In other words, suppose they were not prepared to award such a certificate in a given year? Is it a permissive amendment or is it "shall"?

CHAIRMAN MURRAY: It should be "may be given" instead of "must be". It should be permissive instead of mandatory.

FROM THE FLOOR: How would this person be chosen?

**CHAIRMAN MURRAY:** By the Council of the Society.

Any other questions or discussion?

(No response.)

**CHAIRMAN MURRAY:** All in favor say "Aye".

(The motion was carried.)

**DR. CANNON:** The by-laws call for a portion of our dues, I think it is one dollar per member per year, to be set aside in the Medical Defense Fund, to be used in case a doctor is sued and the Society can provide legal defense for him. However, this fund has accumulated to over $4,000. It has never been used. It was voted by the House of Delegates that a large portion of this fund be diverted at the discretion of the Council for the purchase of capital expenditures as seen fit from time to time, leaving a minimum of $1,000 in this fund for legal expenditures as they may occur. This change in the by-laws was approved by the House of Delegates last week, and we are asking that it be approved for a second reading at this time.

(A motion was made and seconded to approve the above action.)

**CHAIRMAN MURRAY:** Any discussion on this matter?

(There was no response.)

**CHAIRMAN MURRAY:** If not, all in favor please say "Aye".

(The motion was carried.)

The next matter of business is the selection of a meeting place for the Society's convention in 1958.

**DR. BEEBE:** Dr. Baker was supposed to report on the situation after having looked it over.

**CHAIRMAN MURRAY:** Dr. Baker is not here.

**DR. LAGGNER:** Dr. Baker could not get here for this meeting.

**CHAIRMAN MURRAY:** I hate to quote anyone for fear of making an error, but Dr. Baker told me last night that he was in favor of having it in New Castle County.

**DR. LAGGNER:** That is what he told me.

**FROM THE FLOOR:** He also told me the same thing.

**CHAIRMAN MURRAY:** Is there a motion to that effect?

(Dr. Metzger made a motion, to hold the next annual meeting in New Castle County.)

**CHAIRMAN MURRAY:** It has been moved that the meeting place for 1958 be in New Castle County. Is there a second to that motion?

(The motion was seconded.)

**CHAIRMAN MURRAY:** Any discussion?

(There was no response.)

**CHAIRMAN MURRAY:** All in favor say "Aye".

(The motion was carried.)

**CHAIRMAN MURRAY:** The motion is carried. Larry, do you have an announcement?

**MR. MORRIS:** I would like to announce, on behalf of the Committee on Medical Education that another in the series of seminars in Advances of Medicine will be held on the 21st of November at the Presbyterian Church of Dover, which is on State Street. The program will begin at 1:30 under the chairmanship of Dr. Harold Mercer. It will deal with Factors in the Management of Infection. It is being conducted with the cooperation of the Section on Post-Graduate Education of the Department of Medicine of Johns Hopkins University. It will be subdivided into three topics; Viral Infections will be handled by Dr. Wagner, Associate Professor of Medicine; Staphylococcal Infections by Dr. L. E. Clove, Associate Professor of Medicine; Salmonella Infections by Dr. E. W. Hook, who is Assistant Professor of Medicine. This will be followed by round table discussion and a question period, moderated by Dr. Clove. Once again, this will be on the 21st of November, and you will all get individual notices within the next week or two. It will be held in Dover. Thank you.

**CHAIRMAN MURRAY:** Any further business to be brought before the delegates?

(There was no response.)

**CHAIRMAN MURRAY:** A motion to adjourn is then in order.

(A motion was made, seconded and carried to adjourn the meeting.)

**CHAIRMAN:** This meeting is now adjourned.

(The Meeting was then recessed until 1:30 o'clock p.m.)

| Year | Number of Births | Birth Rate Number of Live Births Per 1,000 Population | Infant Mortality Rate Number of Infant Deaths Per 1,000 Live Births | Maternal Mortality Number of Maternal Deaths Per 1,000 Live Births |
|---|---|---|---|---|
| 1942 | 5,665 | 20.8 | 45.8 | 1.6 |
| 1943 | 6,299 | 22.9 | 45.0 | 2.4 |
| 1944 | 6,037 | 21.7 | 47.8 | 1.6 |
| 1945 | 6,019 | 21.5 | 38.0 | 2.9 |
| 1946 | 6,959 | 24.5 | 28.7 | 1.0 |
| 1947 | 7,878 | 27.5 | 29.8 | 1.0 |
| 1948 | 7,405 | 25.6 | 27.9 | .9 |
| 1949 | 7,546 | 25.8 | 29.9 | .7 |
| 1950 | 7,768 | 24.4 | 30.5 | .9 |
| 1951 | 8,203 | 25.3 | 27.1 | .7 |
| 1952 | 8,862 | 27.0 | 27.5 | .5 |
| 1953 | 9,210 | 26.1 | 28.3 | .8 |
| 1954 | 9,737 | 26.7 | 29.1 | .2 |
| 1955 | 10,569 | 27.7 | 23.6 | .5 |
| 1956 | 11,242 | 28.6 | 22.0 | .3 |

The Chart above shows the progress made over the past fifteen years. For this we are very grateful. Much, however, can and must still be done to improve our maternal and infant care.

# ✚ Editorial ✚

## LOST: THE CASE REPORT

The types of medical articles suitable for publication in a state medical journal are limited.

The *review article* is excellent, being appreciated by general practitioner and specialist alike. This type of article generally is difficult to obtain, usually being solicited by the editor and necessitating much badgering of the prospective author.

The *original article* usually is published elsewhere — and for good reason. The author who has an original contribution rightfully desires national distribution, either to the general profession or to a small segment through the specialty journal.

The *paper presented at the annual meeting* has by constitution been the property of the medical society and therefore the backbone of the state medical journal. Until recently, the essayist's invitation to address an annual meeting has depended upon his willingness to submit a proper manuscrip to the secretary at the time of the meeting. In recent years it has been impossible to enforce this rule and still have a desirable program. State medical journals have therefore lost one of their most abundant sources of supply.

The *case report*, however, is the ideal medium for the intercommunication of medical ideas in a state journal. Recently, the editor of a large British medical journal reaffirmed the importance of the case report. Why, therefore, are there so few case reports submitted to the average state medical journal?

The most obvious reason is that the prospective author has come to believe that a complete review of the literature is a necessity in publishing a case report. This review is time consuming and a major deterrent to the average physician. A second reason is fear of criticism in presenting observations that are not documented; for example, some authors would hesitate to report a case of myocardial rupture unless the data contained serial transaminase studies. A third reason is the hesitancy to publish a case whose therapeutic response was unfavorable. This, of course, is the type of report most needed to counteract the glowing reports that invariably accompany the release of any new medication.

What can we do to move back toward the middle of the road and take advantage of this valuable medium? Let us look at the British journals where sections devoted to case reports contain an average of two to three reports per page. This is a distinct contrast to the three, four or five page reports in our journals.

What definite steps can we take in this direction? Let us encourage our younger men to report unusual cases and give them a few general rules for so doing:

1. Do not review the literature; merely mention some classic work on the subject or the most recent review article as a reference.

2. State the reason the case is being reported. State how it differs from the usual case of its type. Do not copy the hospital records; be specific but brief. Your name will appear on the article and anyone interested in obtaining complete data will write to you. Incidentally, many valuable medical friendships can develop from this.

3. Do not be afraid to publish poor results. You may become famous someday for having the courage to doubt the efficacy of a popular remedy.

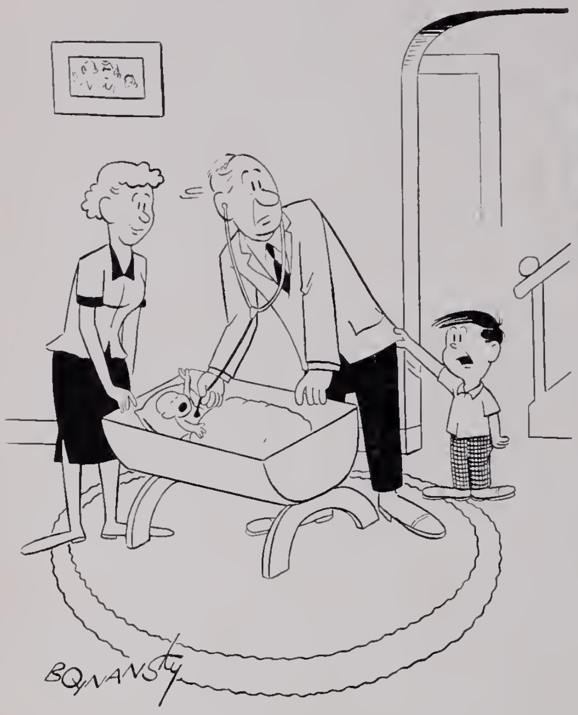
4. Above all, be careful to draw no general conclusions from a single or small group of cases. State the facts; do not theorize.

The case report is a valuable but neglected tool — let's get it out and put it to work for us.

# JAMES W. BUTLER, M. D.

## 1893-1957

A native Wilmingtonian, Dr. Butler died in the city of his birth on October 29, 1957. He was graduated in 1920 from the University of Pennsylvania Medical School and interned both at Philadelphia General and St. Agnes Hospitals in Philadelphia. For 35 years he was an active member of his State and County Medical Societies and at one time was secretary of the Wilmington Board of Health. He is survived by his wife, Mrs. Ann Schultz Butler, a son and three daughters.



"CAN'T WE GET A NEW BABY, DOCTOR? THIS ONE LEAKS."

"THAT'S THE YOUNG MAN I OPERATED ON LAST MONTH --
IT MUST HAVE TAKEN A LOT OUT OF HIM!"

"TAKE ONE A DAY --- COME BACK WHEN THEY'RE GONE."

"HE KNOWS ME SINCE I WAS A LITTLE SHAVER!"

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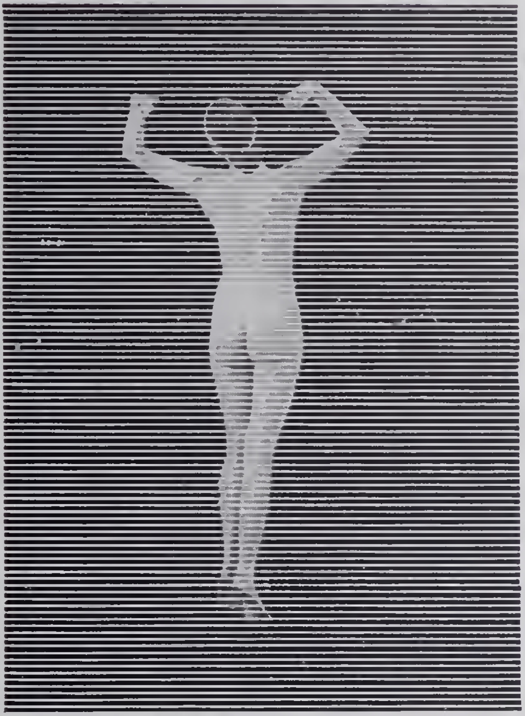
Floraquin® / Destroys Vaginal Parasites
Protects Vaginal Mucosa



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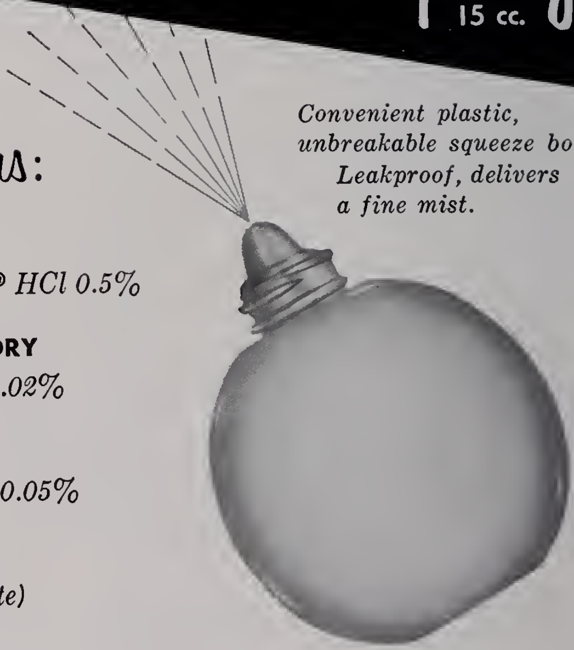

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*Hydrocortisone 0.02%*

**ANTI-ALLERGIC**

*Thenfadil® HCl 0.05%*

**ANTIBACTERIAL**

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*1 mg./cc.*
*(equivalent to 0.6 mg. neomycin base/cc.)*

*Polymyxin B*
*(as sulfate)*
*3000 u/cc.*

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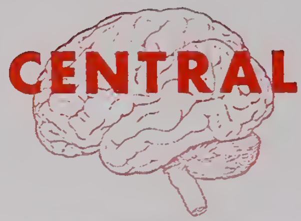

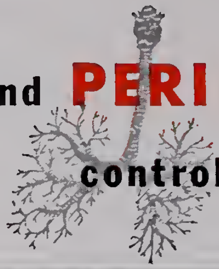

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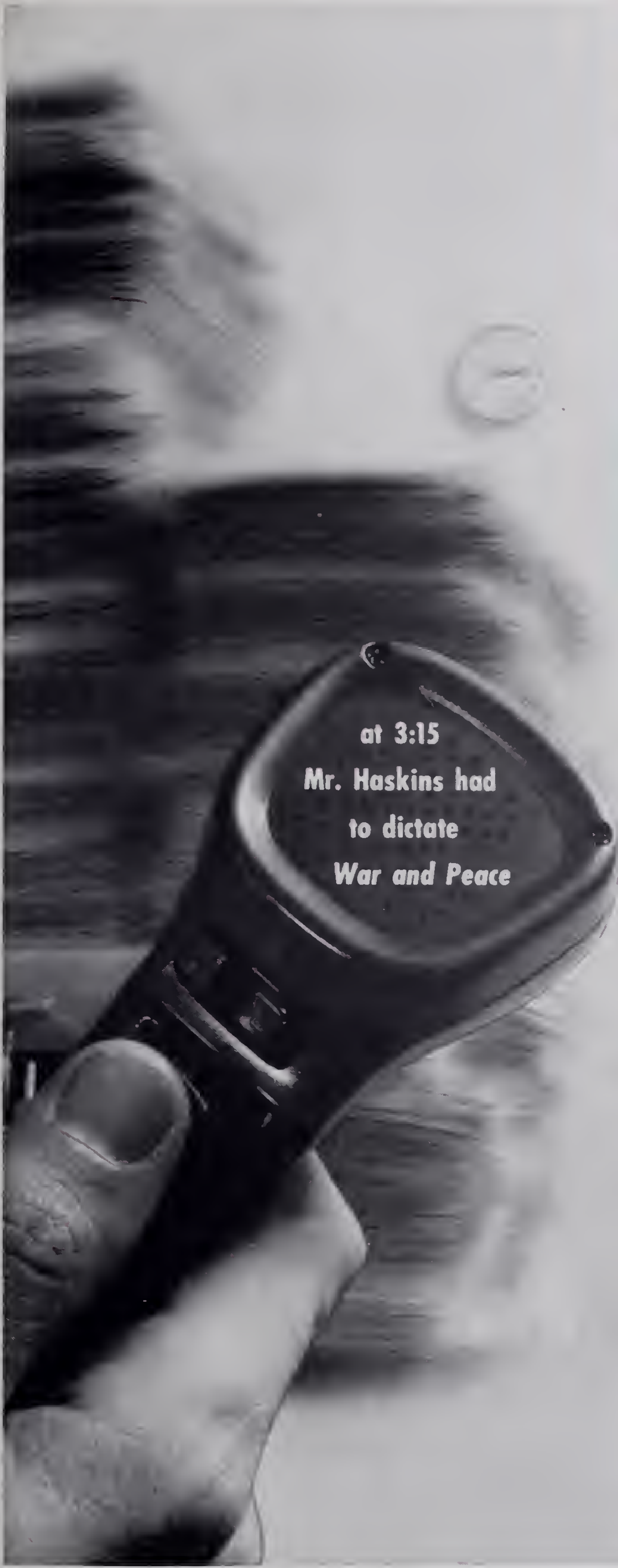

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1. Winsor, Travis: Comparative Effects of Various Rauwolfia Alkaloids in Hypertension; *submitted for publication.*

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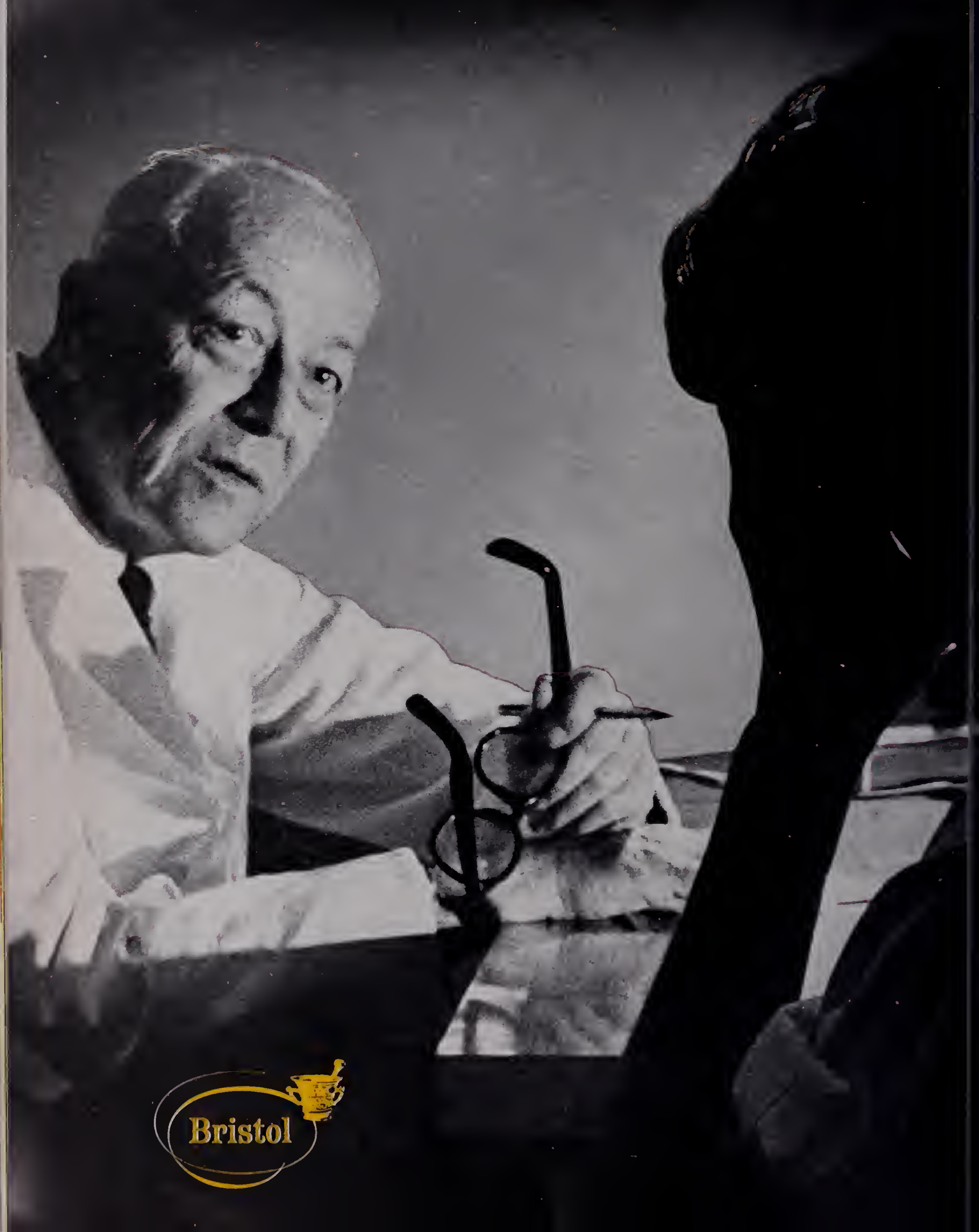

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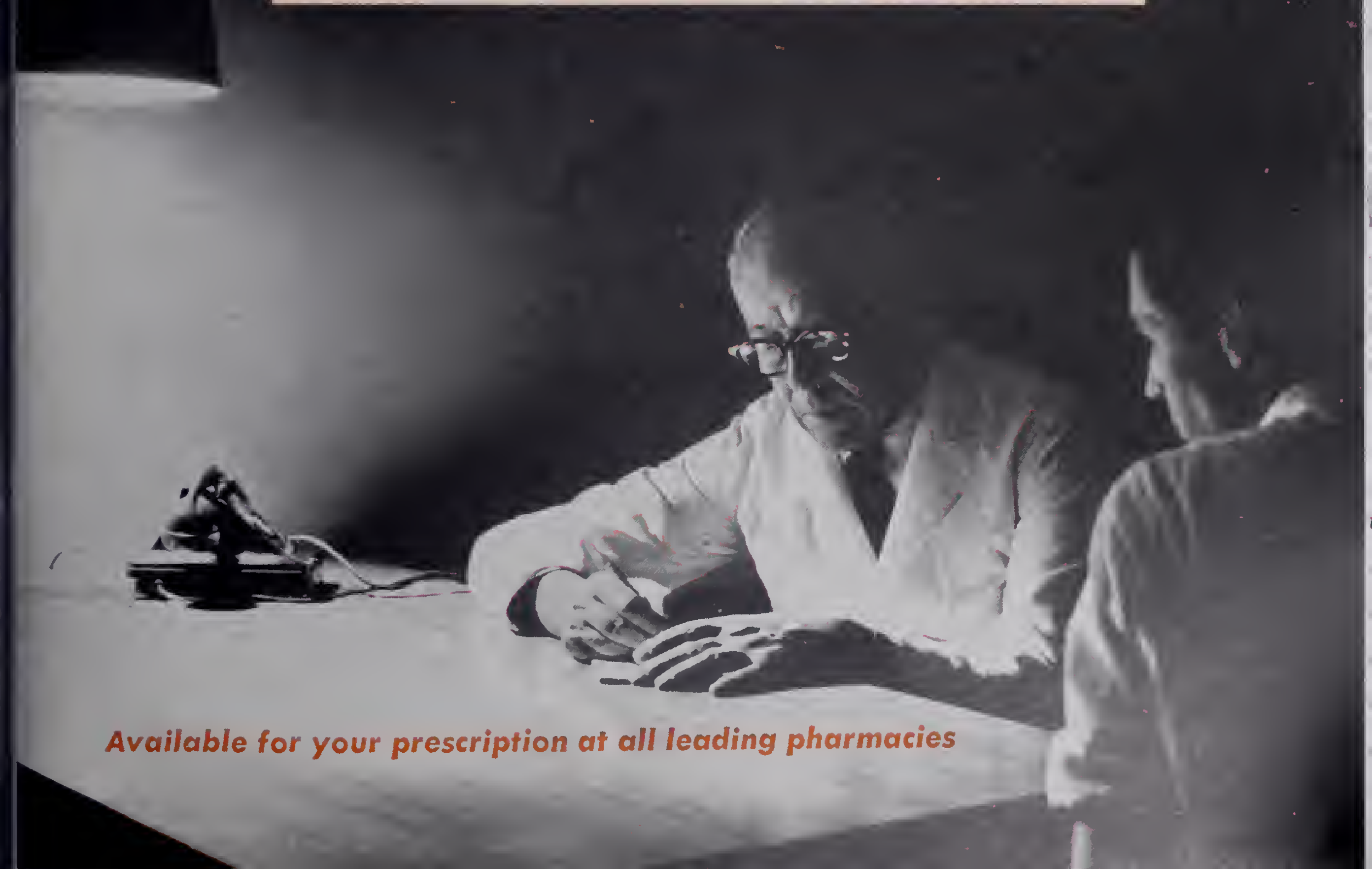

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1. Russek, H. I.: J. Am. Geriat. Soc. 4:877 (Sept.) 1956.

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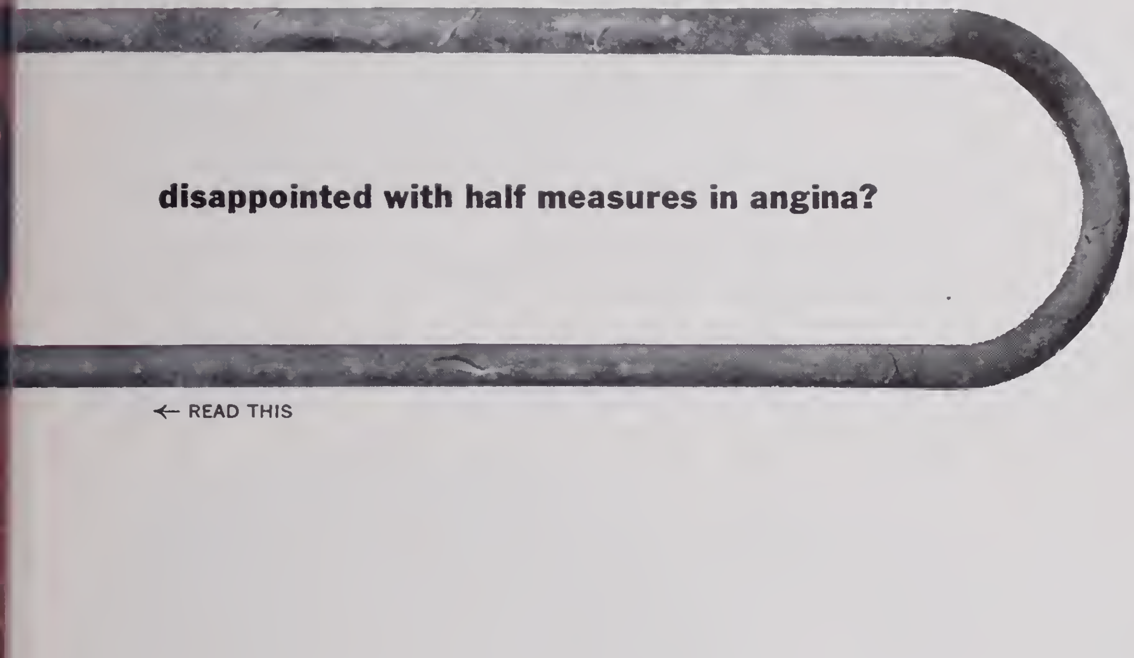

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*who discovered and introduced Miltown, the original meprobamate.*

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both–
*orally* for
dependable prophylaxis
*sublingually* for
fast relief

NEW

ISUPREL®

FOR CHEERFUL INSTEAD OF FEARFUL PATIENTS

# FRANOL® TABLETS

## STHMATIC–

t cheerful instead of fearful

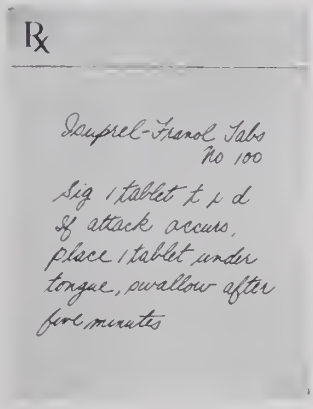
w Isuprel-Franol tablets bring
ınd-the-clock relief *plus* emergency
p against sudden attack. Anxiety
ps when patients know they'll get
ief in 60 seconds — relief that con-
ues for four hours or more.

ıprel HCl (10 mg. for adults, 5 mg.
children), the most potent broncho-
ator known, makes up the outer
ting. In a sudden attack, the patient
s the tablet under his tongue. Relief
rts in 60 seconds. A unique feature
he "flavor-timer." As the Isuprel is
sorbed a lemon flavor appears. When
isappears—about five minutes later
the patient swallows the tablet.

unexcelled combination for pro-
ged bronchodilatation makes up the
ıprel-Franol core: benzylephedrine
Cl (32 mg.), Luminal® (8 mg.) and
ophylline (130 mg.). Swallowed, the
let works for four hours or more.

ıprel-Franol tablets are "... effec-
e in controlling over 80% of
tients with mild to moderate
acks of asthma."[1]

[1] Fromer, J. L., and DeRisio,
J.: *Lahey Clin. Bull.* 10:45,
.-Dec., 1956.



℞

Isuprel-Franol Tabs
No 100

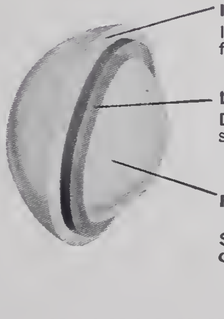
Sig 1 tablet t i d
If attack occurs,
place 1 tablet under
tongue, swallow after
five minutes

**ISUPREL-FRANOL**
tablets (Isuprel HCl 10 mg.) for adults;

**ISUPREL-FRANOL**
Mild tablets (Isuprel HCl 5 mg.) for children:

One tablet every three or four hours taken *orally* for continuous control of bronchospasm in chronic asthma. One tablet taken *sublingually* for sudden attack. "Flavor-timer" signals when patient should swallow.
Bottles of 100 tablets.

### *"Flavor-timer" signals patients when to swallow tablets*



**ISUPREL**
Immediate effect sublingually—for emergency use

**LEMON "FLAVOR-TIMER"**
Disappearance of flavor is the signal to swallow

**FRANOL** { Theophylline, Luminal, Benzylephedrine }
Sustained action—reduces frequency and intensity of attacks

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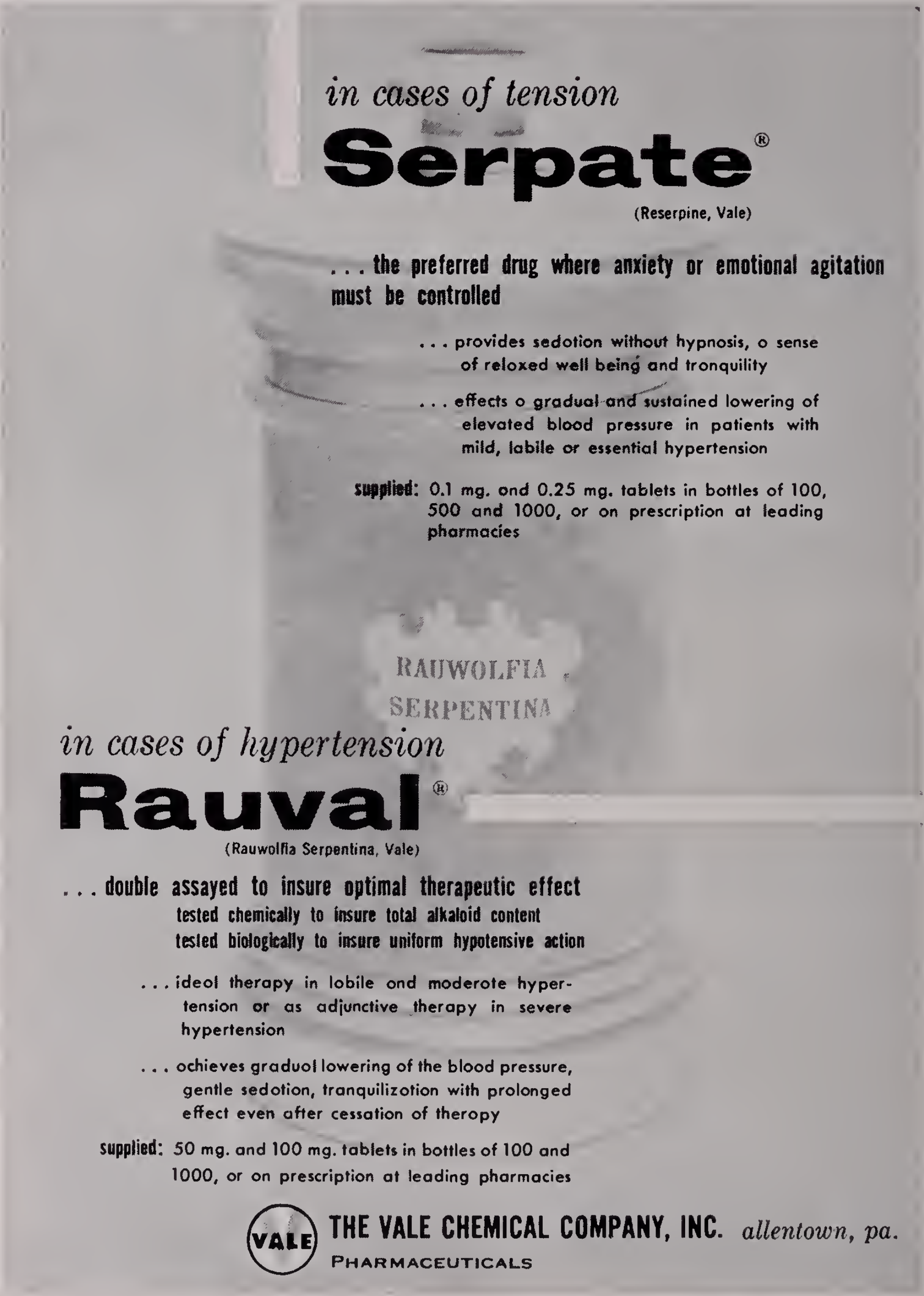

*in cases of tension*

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(Reserpine, Vale)

**. . . the preferred drug where anxiety or emotional agitation must be controlled**

. . . provides sedation without hypnosis, a sense of relaxed well being and tranquility

. . . effects a gradual and sustained lowering of elevated blood pressure in patients with mild, labile or essential hypertension

**supplied:** 0.1 mg. and 0.25 mg. tablets in bottles of 100, 500 and 1000, or on prescription at leading pharmacies

*in cases of hypertension*

**Rauval®**

(Rauwolfia Serpentina, Vale)

**. . . double assayed to insure optimal therapeutic effect**
**tested chemically to insure total alkaloid content**
**tested biologically to insure uniform hypotensive action**

. . . ideal therapy in labile and moderate hypertension or as adjunctive therapy in severe hypertension

. . . achieves gradual lowering of the blood pressure, gentle sedation, tranquilization with prolonged effect even after cessation of therapy

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when anxiety and tension "erupts" in the G. I. tract...

**IN ILEITIS**

**PATHIBAMATE***
Meprobamate with PATHILON® Lederle

*Combines* Meprobamate (*400 mg.*) the most widely prescribed tranquilizer . . . helps control the "emotional overlay" of ileitis — without fear of barbiturate loginess, hangover or habituation . . . *with* PATHILON (*25 mg.*) the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

*Dosage:* 1 tablet t.i.d. at mealtime. 2 tablets at bedtime. *Supplied:* Bottles of 100, 1,000.

*Trademark ® Registered Trademark for Tridihexethyl Iodide Lederle

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LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK

**KNOX** PROTEIN PREVIEWS

TWO NEW CLINICAL REPORTS REAFFIRM THE BENEFITS OF **GELATINE FO**

© 1958 Knox Gelatine Co.

Evidence continues to accumulate verifying the effectiveness of Gelatine in the treatment of brittle fingernails. Investigators report that the nails show objective evidence of improvement.[1,2,3,4] Furthermore, patients often volunteer that their nails "feel stronger," "look smoother," and "I can pick up things without them hurting."[1] Evidently the subjective sensations associated with improvement are nearly as important to some patients as the positive physical change in the nails' appearance.

### Improvement Noted in 81% of Patients

See the chart below for a summary of the effect of Knox Gelatine in brittle fingernails as observed in all published reports. Photographic evidence of improvement, much of it in color taken before and during treatment, is available for most of the patients.[1,2,3] Please note, however, that where Gelatine was used in the treatment of pathological conditions associated with brittle fingernails only in psoriasis did the data show definite improvement.[1,3,4]

### Response to Gelatine in Brittle Fingernails

| References | Dosage | Duration of treatment | No. patients w/ brittle nails | No. patients improved | No. patients w/ brittle nails and other pathology | No. patients improved |
|---|---|---|---|---|---|---|
| 1. Rosenberg, S., Oster, K. A., Kallos, A. and Burroughs, W.: *A.M.A Arch. Dermat* 76:330, (September) 1957 | 7 Gm./day | 3 months | **50** | **43** (86%) | **32**[a] | **9** |
| 2. Schwimmer, M. and Mulinos, M.G. *Antibiot. Med. & Clin. Therapy* 4:403, (July) 1957 | 7.5 Gm./day | 11-16 weeks | **18** | **15** (83%) | | |
| 3. Rosenberg, S. and Oster, K. A.: *Conn. State Med. J* 19:171, (March) 1955 | 7 to 21 Gm./day | 15 weeks | **36** | **26**[b] (72%) | | |
| 4. Tyson, T. L.: *J. Invest. Dermat* 14:323, (May) 1950 | 7 Gm./day | 13 weeks | **12** | **10**[c] (83%) | | |
| **Totals** | 7-21 Gm. | 11-16 weeks | **116** | **94** (81%) | **32** | **9** (28%) |

a. Gelatine improved psoriatic nails in 5 out of 12 cases. In onychomycosis and other pathological conditions of the nail it was of no appreciable help.

b. Of the failures, 2 had congenital disease of the nails, 3 were diabetics and 3 took the medication for less than one month.

c. One patient with psoriasis and arthritis and one patient with psoriasiform nail changes showed improvement in 2 and 3 months respectively.

# BRITTLE FINGERNAILS

### Important Note

The pharmacodynamic effects of Gelatine are manifested through its high Specific Dynamic Action, and therefore, depend upon adequate and prolonged intake. All published clinical research has been conducted using 7 to 21 grams (1-3 envelopes) of Knox Gelatine per day for the three to four months that are required for complete regrowth of the nails. Smaller dosage would induce a lesser specific dynamic action and thus prove ineffectual in correcting the brittle nail defects. More detailed information on brittle fingernails and reprints of the two more recent clinical reports are available on request. Please use the attached coupon.

Knox Gelatine Company
Professional Service Department SJ-27
Johnstown, N. Y.

Please send reprints of the following articles:

☐ Rosenberg, S., Oster, K. A., Kallos, A. and Burroughs, W.: *A.M.A. Arch. Dermat.* 76:330, (Sept.) 1957.

☐ Schwimmer, M. and Mulinos, M.G.: *Antibiot. Med. & Clin. Therapy* 4:403, (July) 1957.

YOUR NAME AND ADDRESS

ACHROCIDIN is indicated for prompt control of undifferentiated upper respiratory infections in the presence of questionable middle ear, pulmonary, nephritic, or rheumatic signs; during respiratory epidemics; when bacterial complications are observed or expected from the patient's history.

Early potent therapy is provided against such threatening complications as sinusitis, adenitis, otitis, pneumonitis, lung abscess, nephritis, or rheumatic states.

Included in this versatile formula are recommended components for rapid relief of debilitating and annoying cold symptoms.

Adult dosage for ACHROCIDIN Tablets and new, caffeine-free ACHROCIDIN Syrup is two tablets or teaspoonfuls of syrup three or four times daily. Dosage for children according to weight and age.

*Available on prescription only*

*symptomatic relief... plus!*

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TETRACYCLINE-ANTIHISTAMINE-ANALGESIC COMPOUND

*Tablets*

*Each tablet contains:*

| | |
|---|---|
| ACHROMYCIN® Tetracycline | 125 mg. |
| Phenacetin | 120 mg. |
| Caffeine | 30 mg. |
| Salicylamide | 150 mg. |
| Chlorothen Citrate | 25 mg. |

*Syrup*

*Each teaspoonful (5 cc.) contains:*

| | |
|---|---|
| ACHROMYCIN® Tetracycline equivalent to tetracycline HCl | 125 mg. |
| Phenacetin | 120 mg. |
| Salicylamide | 150 mg. |
| Ascorbic Acid (C) | 25 mg. |
| Pyrilamine Maleate | 15 mg. |
| Methylparaben | 4 mg. |
| Propylparaben | 1 mg. |

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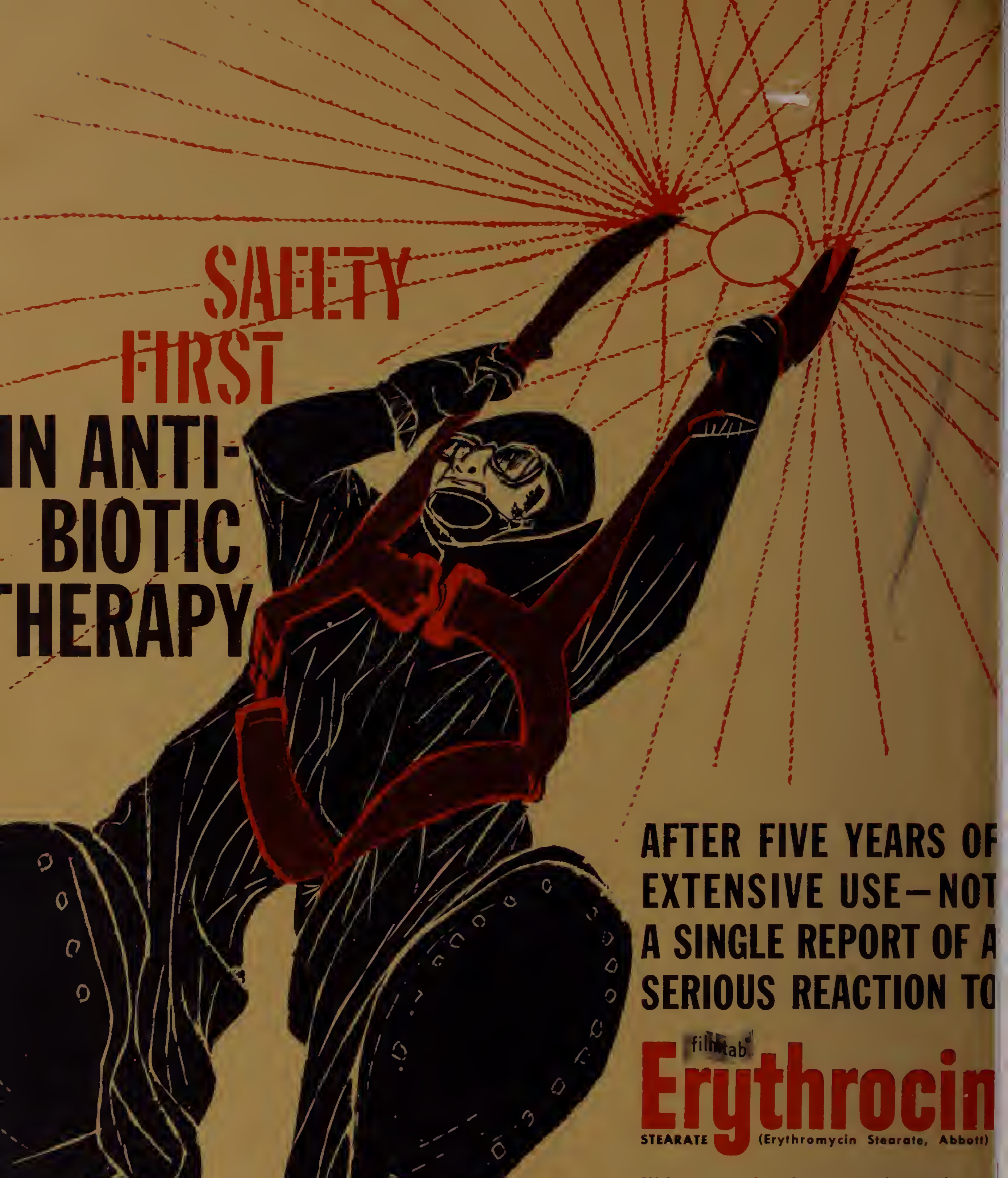
SAFETY FIRST



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Still, with all this notable freedom fro toxicity, ERYTHROCIN is effective in th majority of common bacterial respirator infections. Comes in two potencies (10 and 250 mg.), bottles of 25 and 100 The recommended adult dose is 250 mg. q.i.d.

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AZOTREX is the only urinary anti-infective agent combining:

(1) the broad-spectrum antibiotic efficiency of TETREX—the original tetracycline phosphate complex which provides faster and higher blood levels;

(2) the chemotherapeutic effectiveness of sulfamethizole—outstanding for solubility, absorption and safety;

(3) the pain-relieving action of phenylazo-diamino-pyridine HCl—long recognized as a urinary analgesic.

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*through comprehensi*

*Literature and clinical supply on request*

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Bristol LABORATORIES INC., SYRACUSE, NEW YO

This unique formulation assures faster and more certain control of urinary tract infections, by providing comprehensive effectiveness against whatever sensitive organisms may be involved. Indicated in the treatment of cystitis, urethritis, pyelitis, pyelonephritis, ureteritis and prostatitis due to bacterial infection. Also before and after genitourinary surgery and instrumentation, and for prophylaxis.

*In each AZOTREX Capsule:*

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| TETREX (tetracycline phosphate complex) | 125 mg. |
| Sulfamethizole ....... | 250 mg. |
| Phenylazo-diamino-pyridine HCl | 50 mg. |

*Min. adult dose: 1 cap. q.i.d.*

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***racycline-sulfonamide-analgesic action***

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Hyoscyamine Sulfate . . . . 0.031 mg.
**plus**
Prophenpyridamine Maleate . . 12.5 mg.
Phenylephrine Hydrochloride . 10.0 mg.

when anxiety and tension "erupts" in the G. I. tract...

**in spastic and irritable colon**

**PATHIBAMATE***

Meprobamate with PATHILON® Lederle

*Combines* Meprobamate *(400 mg.)* the most widely prescribed tranquilizer... helps control the "emotional overlay" of spastic and irritable colon—without fear of barbiturate loginess, hangover or habituation ... *with* PATHILON *(25 mg.)* the anticholinergic noted for its extremely low toxicity and high effectiveness in the treatment of many G.I. disorders.

*Dosage:* 1 tablet t.i.d. at mealtime. 2 tablets at bedtime. *Supplied:* Bottles of 100, 1,000.

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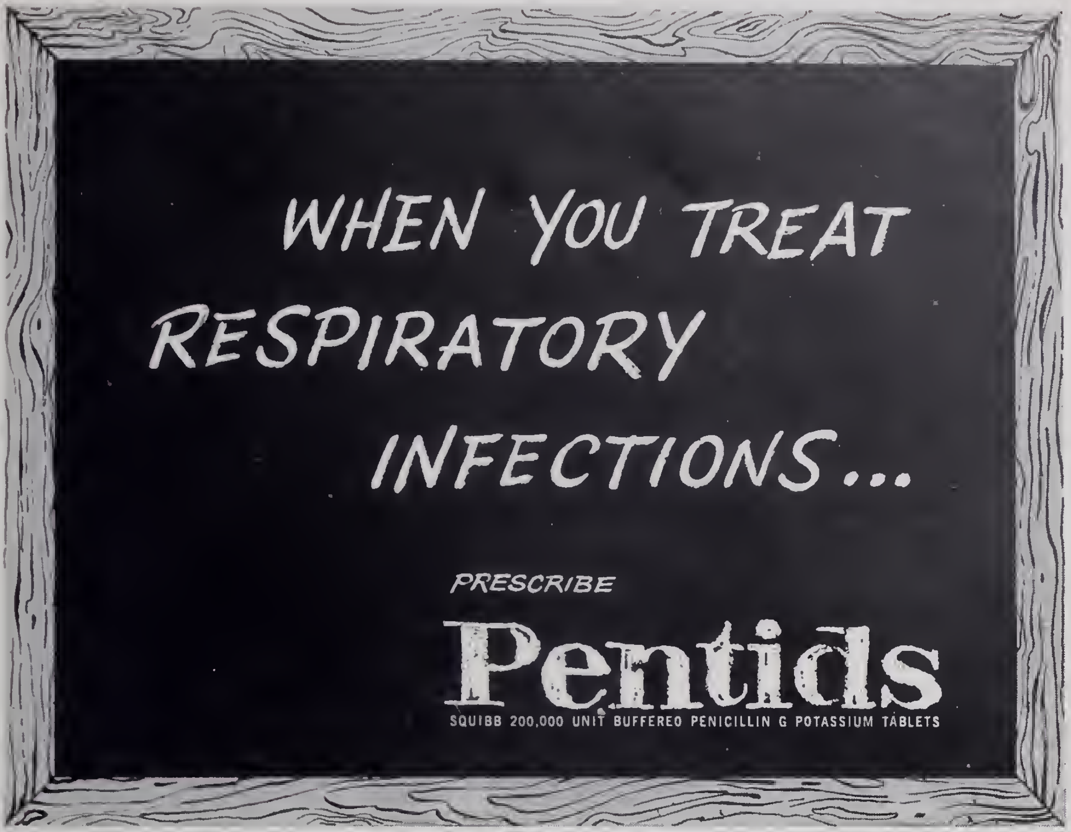
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- *may be given without regard to meals*
- *economical . . . Pentids cost less than other penicillin salts*

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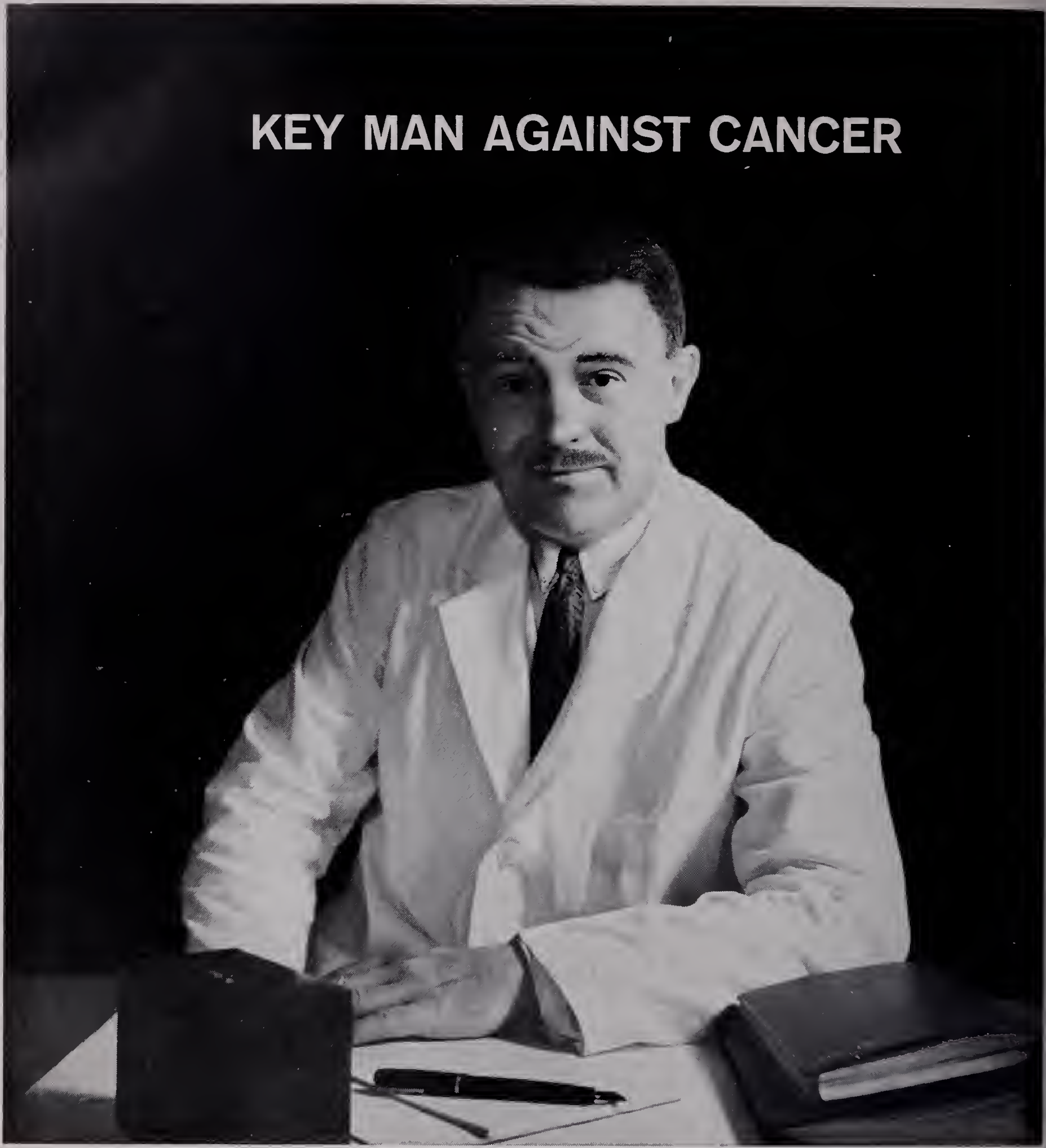

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